

PART A
IONOSPHERIC DATA

ISSUED
NOVEMBER 1957

U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

IONOSPHERIC DATA

CONTENTS

	<u>Page</u>
Symbols, Terminology, Conventions	2
Predicted and Observed Sunspot Numbers.	5
World-Wide Sources of Ionospheric Data.	6
Errata.	8
Examples of Ionospheric Vertical Soundings	
Puerto Rico, W. I.; July 3, 1957.	9
Radio Noise Data.	11
Tables of Ionospheric Data.	16
Graphs of Ionospheric Data.	28
Index of Tables and Graphs of Ionospheric	
Data in CRPL-F159 (Part A).	64

SYMBOLS, TERMINOLOGY, CONVENTIONS

Beginning with data reported for January 1952, and continuing through December 1956, the symbols, terminology, and conventions for the determination of median values used in this report (CRPL-F series) conform as far as practicable to those adopted at the Sixth Meeting of the International Radio Consultative Committee (C.C.I.R.) in Geneva, 1951. Excerpts concerning symbols and terminology from Document No. 626-E of this Meeting are given on pages 2-7 of the report CRPL-F89, "Ionospheric Data," issued January 1952. Reprints of these pages are available upon request.

Beginning with data for January 1957, the symbols used are given in NBS Report 5033, "Summary of Changes in Ionospheric Vertical Soundings, Observing and Scaling Procedures - Effective 1 January 1957," which draws upon the First Report of the Special Committee on World-Wide Ionospheric Soundings (URSI/AGI), Brussels, Sept. 2, 1956. A list of these symbols is available upon request.

In the Second Report of the Special Committee on World-Wide Ionospheric Soundings of the URSI/AGI Committee, May 1957, a new descriptive letter was introduced:

- M Measurement questionable because the ordinary and extraordinary components are not distinguishable.

There was an expansion in meaning of the following:

- Z (1) (qualifying letter) Measurement deduced from the third magnetoionic component.
 (2) (descriptive letter) Third magnetoionic component present.

Beginning with data for January 1945, median values are published wherever possible. Where averages are reported, they are, at any hour, the average for all the days during the month for which numerical data exist.

The following conventions are used in determining the medians for hours when no measured values are given because of equipment limitations and ionospheric irregularities. Symbols used are those given above.

- a. For all ionospheric characteristics:

Values missing because of A, C, F, H, L, N, R or S are omitted from the median count.

b. For critical frequencies and virtual heights:

Values of f_oF_2 (and f_oE near sunrise and sunset) missing because of E are counted as equal to or less than the lower limit of the recorder. Values of $h'F$ (and $h'E$ near sunrise and sunset) missing for this reason are counted usually as equal to or greater than the median. Other characteristics missing because of E are omitted from the median count.

Values missing because of G are counted:

1. For f_oF_2 , as equal to or less than f_oF_1 .
2. For $h'F_2$, as equal to or greater than the median.

The symbol W is included in the median count only when it replaces a height characteristic; the descriptive symbol D, only when it replaces a frequency characteristic.

Values missing for any other reason are omitted from the median count.

c. For MUF factor (M-factors):

Values missing because of G or W are counted as equal to or less than the median.

Values missing for any other reason are omitted from the median count.

d. For sporadic E (Es):

Values of fEs missing because of E or G (and B when applied to the daytime E region only) are counted as equal to or less than the median f_oE , or equal to or less than the lower frequency limit of the recorder.

At night B for fEs is counted on the low side when there is a numerical value of f_oF_2 ; otherwise it is omitted from the median count.

Values of fEs missing for any other reason, and values of $h'Es$ missing for any reason at all are omitted from the median count.

Beginning with data for November 1945, doubtful monthly median values for ionospheric observations at Washington, D. C., are indicated by parentheses, in accordance with the practice already in use for doubtful hourly values. The following are the conventions used to determine whether or not a median value is doubtful:

1. If the count is four or less, the data are considered insufficient and no median value is computed.

2. For the F2 layer, h'F or foEs, if the count is from five to nine, the median is considered doubtful. The E and F1 layers are so regular in their characteristics that, as long as the count is at least five, the median is not considered doubtful. A count of at least 5 is considered sufficient for an h'Es median.

3. For all layers, if more than half of the data used to compute the medians are doubtful (either doubtful or interpolated), the median is considered doubtful.

The same conventions are used by the CRPL in computing the medians from tabulations of daily and hourly data for stations other than Washington, beginning with the tables in IRPL-F18.

Ordinarily, a blank space in the fEs or foEs column of a table is the result of the fact that a majority of the readings for the month are below the lower limit of the recorder or less than the corresponding values of foE. Blank spaces at the beginning and end of columns of h'F2 or h'F1, foF1, h'E, and foE are usually the result of diurnal variation in these characteristics. Complete absence of medians of h'F1 and foF1 is usually the result of seasonal effects.

The dashed-line prediction curves of the graphs of ionospheric data are obtained from the predicted zero-muf contour charts of the CRPL-D series publications. The following points are worthy of note:

- a. Predictions for individual stations used to construct the charts may be more accurate than the values read from the charts since some smoothing of the contours is necessary to allow for the longitude effect within a zone. Thus, inasmuch as the predicted contours are for the center of each zone, part of the discrepancy between the predicted and observed values as given in the F series may be caused by the fact that the station is not centrally located within the zone.
- b. The final presentation of the predictions is dependent upon the latest available ionospheric and radio propagation data, as well as upon predicted sunspot number.
- c. There is no indication on the graphs of the relative reliability of the data; it is necessary to consult the tables for such information.
- d. The tables may contain median values of either foEs or fEs. The graph of median Es corresponds to the table. Percentage curves of fEs are estimated from values of foEs when necessary.

PREDICTED AND OBSERVED SUNSPOT NUMBERS

The following predicted smoothed 12-month running-average Zürich sunspot numbers were used in constructing the contour charts:

Month	Predicted Sunspot Number										
	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948
December		150*	150	42	11	15	33	53	86	108	114
November		150*	147	35	10	16	38	52	87	112	115
October		150*	135	31	10	17	43	52	90	114	116
September		150*	119	30	8	18	46	54	91	115	117
August		150*	105	27	8	18	49	57	96	111	123
July		150*	95	22	8	20	51	60	101	108	125
June		150*	89	18	9	21	52	63	103	108	129
May		150*	77	16	10	22	52	68	102	108	130
April	150*	150*	68	13	10	24	52	74	101	109	133
March	150*	150*	60	14	11	27	52	78	103	111	133
February	150*	150*	53	14	12	29	51	82	103	113	133
January	150*	150*	48	12	14	30	53	85	105	112	130

*This number is believed representative of solar activity at a maximum portion of the current sunspot cycle.

The latest available information follows concerning the corresponding observed Zürich numbers beginning with the minimum of April 1954. Final numbers are listed through June 1956.

Observed Sunspot Number

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1954				3	4	4	5	7	8	8	9	12
1955	14	16	19	23	29	35	40	46	55	64	73	81
1956	89	98	109	119	127	137	145	148	149	154	157	162
1957	169	171	174	181								

WORLD - WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 72 and figures 1 to 143 were assembled by the Central Radio Propagation Laboratory for analysis and correlation, incidental to CRPL prediction of radio propagation conditions. The data are median values unless otherwise indicated. The following are the sources of the data in this issue:

Commonwealth of Australia, Ionospheric Prediction Service of the
Commonwealth Observatory:

Brisbane, Australia
Canberra, Australia
Hobart, Tasmania

Australian Department of Supply and Shipping, Bureau of Mineral
Resources, Geology and Geophysics:
Watheroo, Western Australia

University of Graz:
Graz, Austria

Escola Politecnica, University of Sao Paulo:
Sao Paulo, Brazil

British Department of Scientific and Industrial Research, Radio
Research Board:
Ibadan, Nigeria (University College of Ibadan)
Inverness, Scotland
Port Lockroy
Singapore, British Malaya

Defence Research Board, Canada:
Baker Lake, Canada
Churchill, Canada
Ottawa, Canada
Resolute Bay, Canada
Winnipeg, Canada

Danish National Committee of URSI:
Godhavn, Greenland

General Direction of Posts and Telegraphs, Helsinki, Finland:
Nurmijarvi, Finland

National Laboratory of Radio-Electricity (French Ionospheric
Bureau):
Casablanca, Morocco
Poitiers, France

Institute for Ionospheric Research, Lindau Uber Northeim,
Hannover, Germany:
Lindau/Harz, Germany

The Royal Netherlands Meteorological Institute:
De Bilt, Holland

Central Institute of Meteorology, Budapest, Hungary:
Budapest, Hungary

Icelandic Post and Telegraph Administration:
Reykjavik, Iceland

Indian Council of Scientific and Industrial Research, Radio Research Committee, New Delhi, India:
Ahmedabad (Physical Research Laboratory)
Bombay (All India Radio)
Calcutta (Institute of Radio Physics and Electronics)
Delhi (All India Radio)
Kodaikanal (India Meteorological Department)
Madras (All India Radio)
Tiruchy (All India Radio)

Christchurch Geophysical Observatory, New Zealand Department of Scientific and Industrial Research:
Christchurch, New Zealand

Norwegian Defence Research Establishment, Kjeller per
Lillestrom, Norway:
Oslo, Norway
Tromso, Norway

Manila Observatory:
Baguio, P. I.

Research Institute of National Defence, Stockholm, Sweden:
Kiruna, Sweden
Lycksele, Sweden
Upsala, Sweden

Post, Telephone and Telegraph Administration, Berne, Switzerland:
Schwarzenburg, Switzerland

United States Army Signal Corps:
Adak, Alaska
Grand Bahama I.
St. John's, Newfoundland
White Sands, New Mexico

National Bureau of Standards (Central Radio Propagation Laboratory):

Anchorage, Alaska

Fairbanks, Alaska (Geophysical Institute of the University of Alaska)

Huancayo, Peru (Instituto Geofisico de Huancayo)

Maui, Hawaii

Point Barrow, Alaska

Puerto Rico, W. I.

San Francisco, California (Stanford University)

Talara, Peru (Instituto Geofisico de Huancayo)

ERRATA

1. CRPL-F158 (Part A), p. 53, fig. 91: Delete foF2 value, >10.4 , at righthand end.
2. CRPL-F158 (Part A), p. 60, fig. 120: For greater accuracy in plotted values of h'F2 at hours 17 and 18, see table 60, p. 28.

EXAMPLES OF IONOSPHERIC VERTICAL SOUNDINGS
 PUERTO RICO, W.I.; JULY 3, 1957
 (Geomagnetic Latitude $27^{\circ}N$)

The following ionograms were obtained at the Puerto Rico W.I. vertical sounding station. They are typical of the ionospheric conditions for July at this geomagnetic latitude. Ionograms are scaled directly from these records onto the daily f_oF₂ graph of frequency characteristics vs. time. The f_oF₂ for the day represented by these soundings is found on the following page. Medians as found in the Tables of Ionospheric Data are calculated using hourly values taken from the f_oF₂ plot or directly from the ionogram.

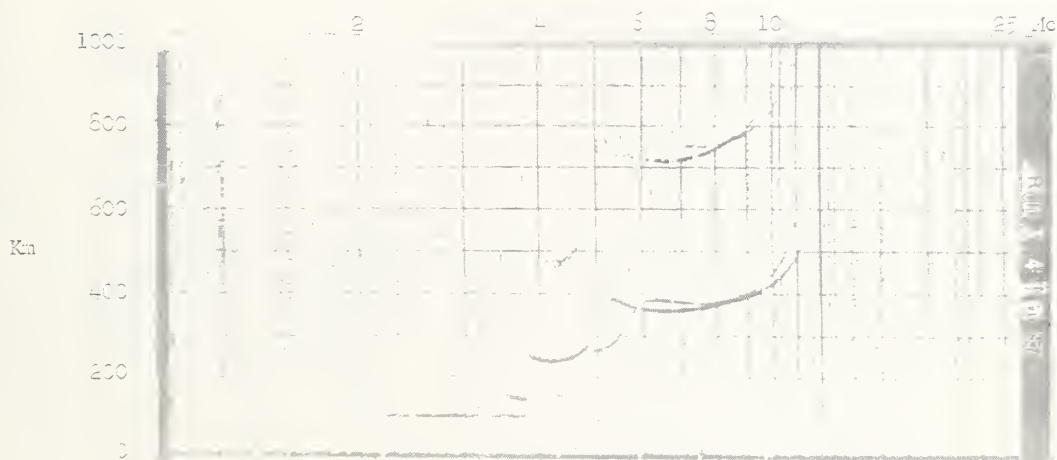


Fig. A. Puerto Rico, W.I., July 3, 1957, 16-5 hours, $60^{\circ}W$ time.

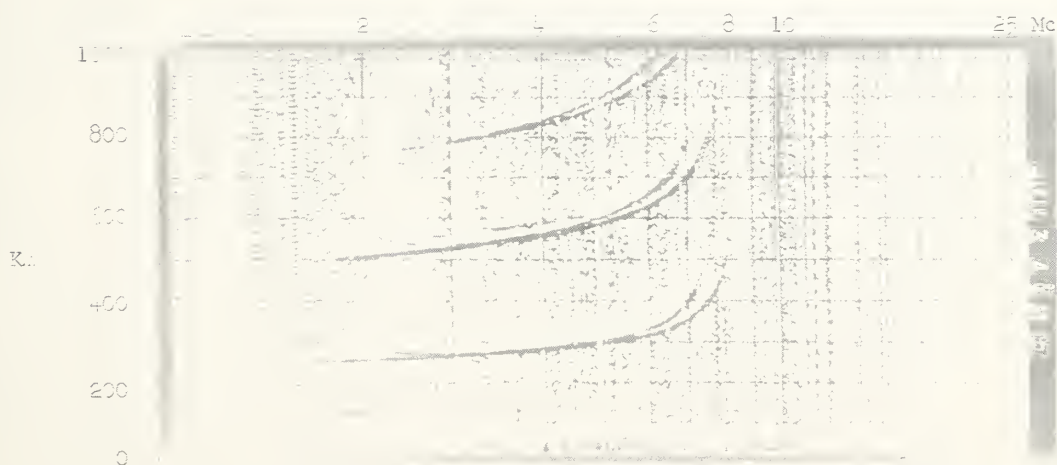
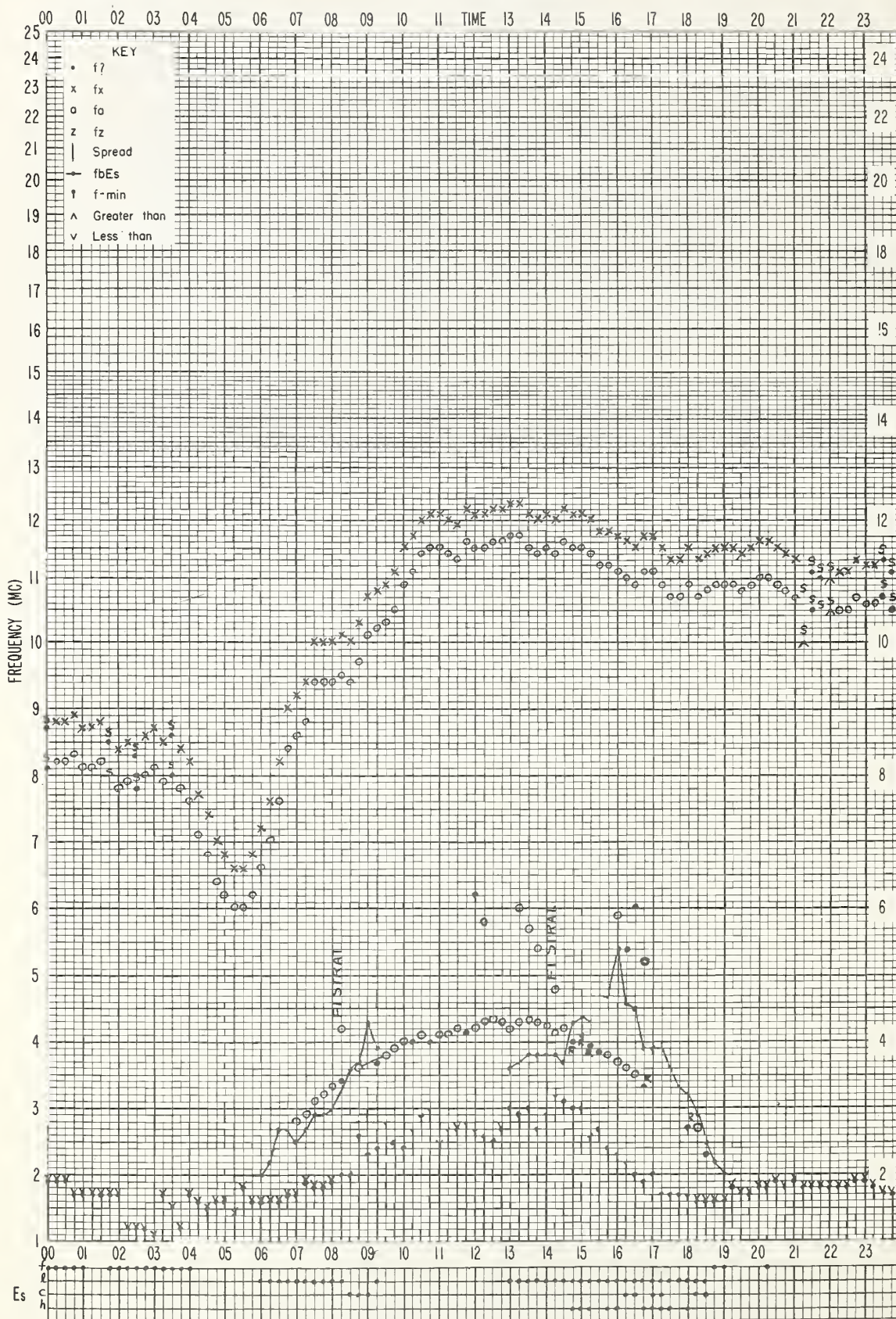


Fig. B. Puerto Rico, W.I., July 3, 1957, 0400 hours, $60^{\circ}W$ time.

PUERTO RICO, W.I.

STATION ION PR

f - PLOT OF IONOSPHERIC DATA

DATE JULY 3, 1957

Radio Noise Data

The results of radio noise measurements are presented in the following graphs and tables. These are based on three parameters of the noise: (1) the mean power, (2) the mean envelope voltage, and (3) the mean logarithm of the envelope voltage. The mean power averaged over a period of several minutes is the basic parameter and is expressed as an effective antenna noise figure, F_a . F_a is defined as the noise power available from an equivalent lossless antenna in db above ktb (the thermal noise power available from a passive resistance) where

k = Boltzman's constant (1.38×10^{-23} joules per degree Kelvin)

t = Absolute room temperature (taken as 288° K)

b = Bandwidth in cycles per second.

The mean voltage and mean logarithm are expressed as deviations, V_d and L_d , respectively, in db below the mean power.

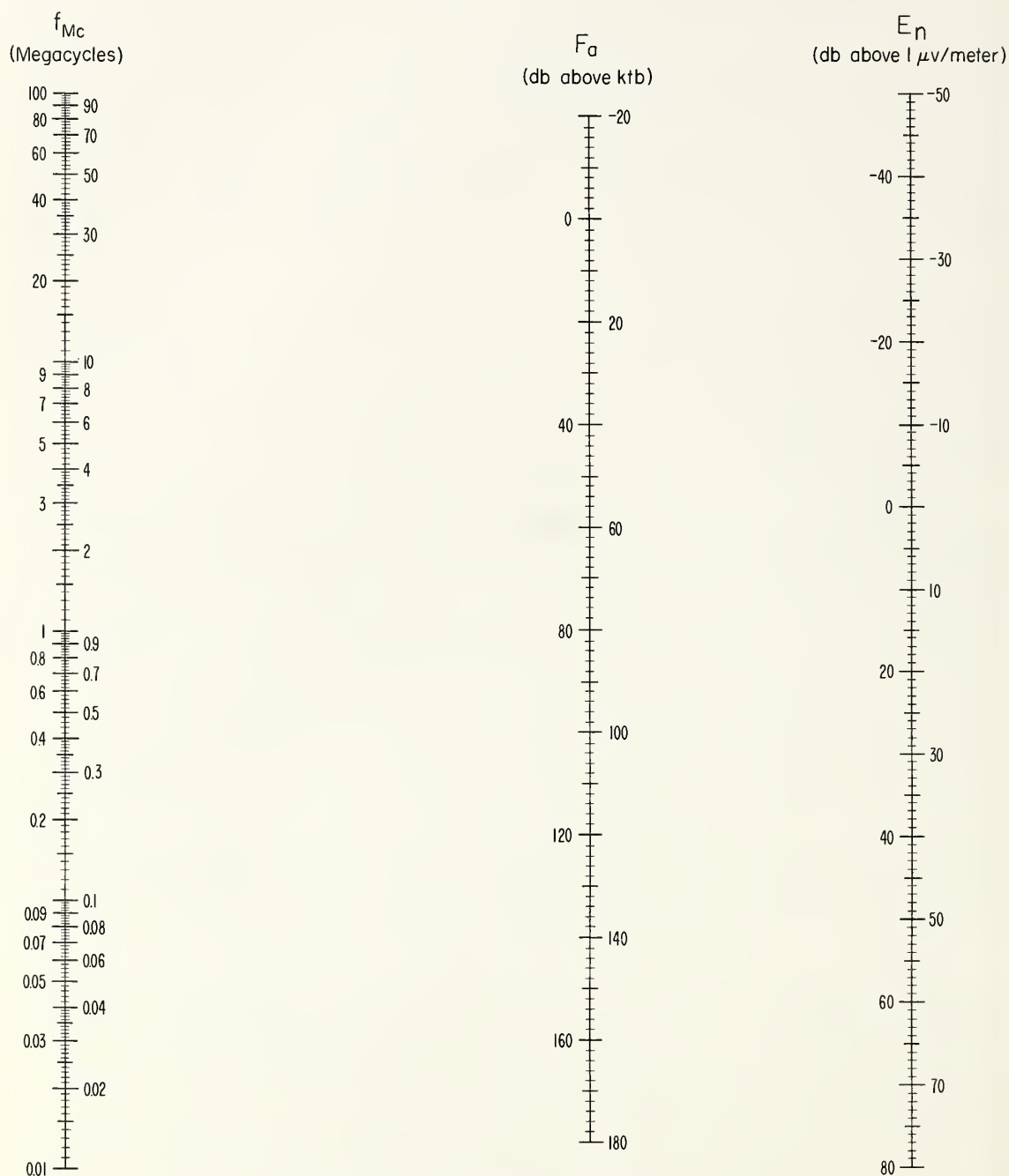
Measurements of these parameters were made with the National Bureau of Standards Radio Noise Recorder, Model ARN-2, which has an effective noise bandwidth of 280 cycles per second and uses a standard 21.75' vertical antenna. A 15-minute recording is made on each frequency each hour, and these 15-minute samples are taken as representing the noise conditions for the full hour. The month-hour medians, F_{am} , V_{dm} , and L_{dm} are determined from these hourly values for each of the corresponding parameters and the resulting medians are plotted at the half-hour point on the curves. Normally from 25 to 30 observations of the mean power are obtained monthly for each hour of the day, and from 10 to 15 observations of the voltage and logarithm deviations. When there are fewer than 15 observations of the mean power, or 7 observations of the voltage and logarithm deviations, the tabulated values are identified by an asterisk (*).

The upper and lower decile values of F_a are also reported in the following tabulation to give an indication of the extent of the variation of the noise power from day to day at a given time of day. These are expressed in db above and below the month-hour median, F_{am} , and designated by D_u and D_l , respectively.

To convert F_a to an r.m.s. noise field strength, E_n , the nomogram or the equation on the following page may be used.

Information on expected worldwide noise levels and their application to systems problems is presented in NBS Circular 557 (available from the Supt. of Documents, U. S. Govt. Printing Office, Washington 25, D. C.). More recent estimates of radio noise levels are given in CCIR Report No. 65, "Report on Revision of Atmospheric Radio Noise Data", Warsaw, 1956 (available from the International Telecommunication Union, Geneva).

NOMOGRAM FOR TRANSFORMING EFFECTIVE ANTENNA NOISE FIGURE TO NOISE FIELD STRENGTH AS A FUNCTION OF FREQUENCY



$$E_n = F_a + 20 \log_{10} f_{Mc} - 65.5$$

F_a = Effective Antenna Noise Figure = External Noise Power Relative to ktb Available from an Equivalent Short, Lossless, Vertical Antenna in db Above ktb.

E_n = Equivalent Vertically Polarized Ground Wave R.M.S. Noise Field Strength in db Above $1 \mu v/meter$ for a 1 kc Bandwidth.

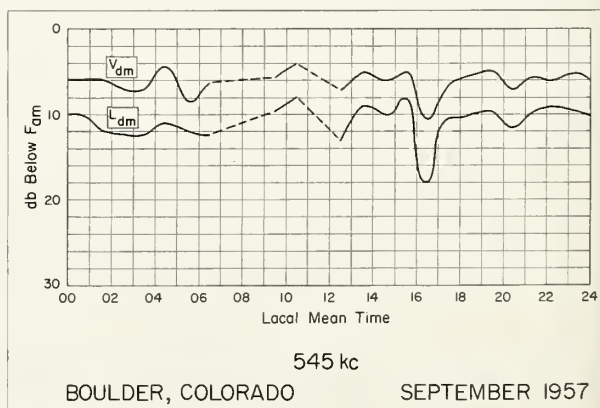
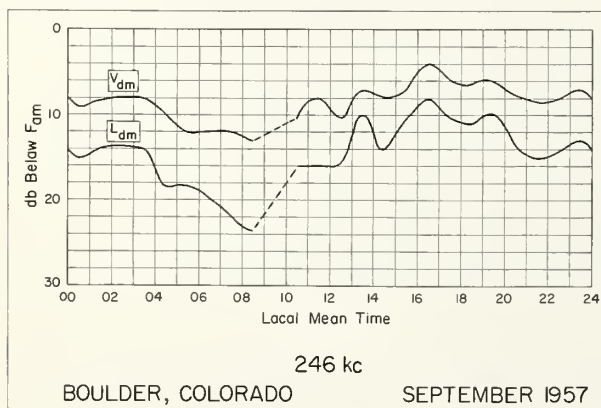
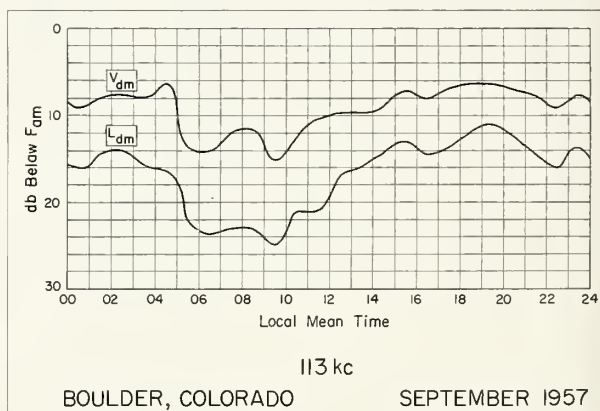
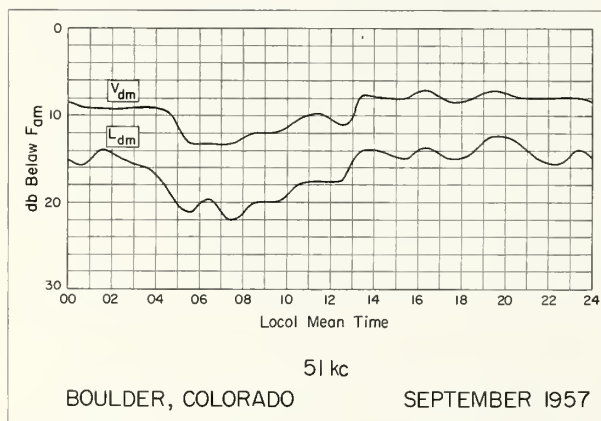
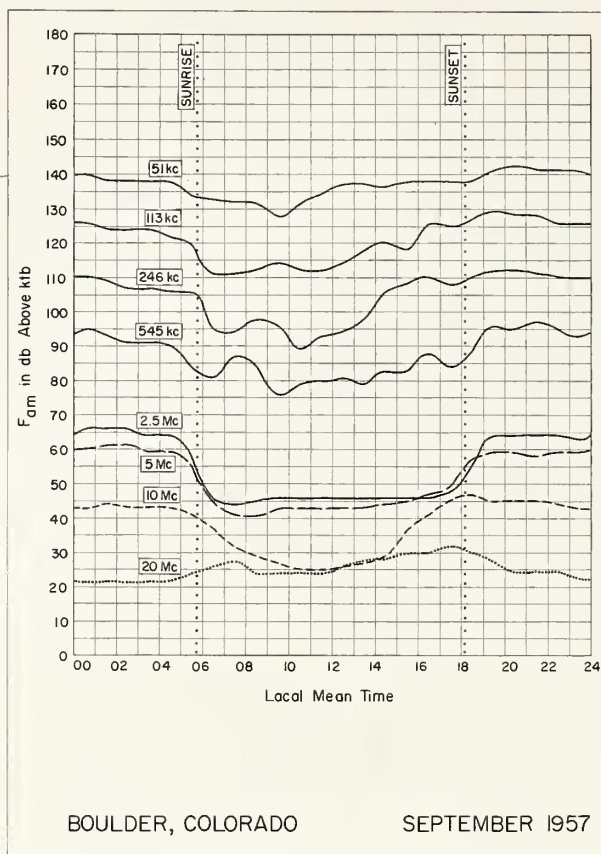
f_{Mc} = Frequency in Megacycles.

RADIO NOISE DATA

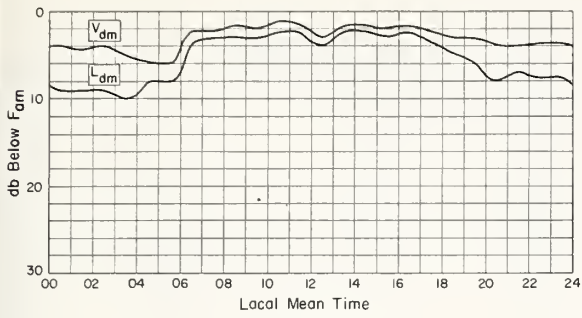
Station Boulder, Colorado Lat. 40.1° N Long. 105.1° W Type Recorder ARN-2 Month Sept. 19 57

Local Mean Time																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
51kc																								
F _{am}	140	138	*138	*138	138	*134	*133	*132	*132	*128	*132	*134	*137	*137	136	*138	138	*138	*138	*141	*142	*141	*141	*141
D _u	4	6			2										8		8							
D _ℓ	6	6			6										8		6							
V _{dm}	9.0	9.0	9.0	9.0	9.5	*13.0	*13.0	*13.0	*12.0	*12.0	*10.5	*9.5	*11.0	*7.5	*8.0	*8.0	*7.0	*8.5	*8.0	7.0	*8.0	8.0	8.0	*8.0
L _{dm}	15.5	14.0	15.0	16.0	18.5	*21.0	*19.5	*22.0	*20.0	*20.0	18.0	17.5	17.5	14.0	14.5	15.0	13.5	15.0	14.5	12.5	13.0	15.0	15.5	*14.0
113kc																								
F _{am}	126	124	124	*124	*122	*120	*111	*111	*112	*114	*112	*112	*114	*118	120	118	126	*125	*127	*129	*128	*128	*126	*126
D _u	6	6	6												16	18	10							
D _ℓ	8	8	8												12	14	20							
V _{dm}	9.0	8.0	7.5	8.0	6.5	*13.5	*14.0	*12.0	*11.5	*15.0	*12.5	*10.5	*9.5	*9.5	*9.0	*7.0	*8.0	*7.0	6.5	*6.5	7.0	8.0	9.0	7.5
L _{dm}	16.0	14.5	14.0	15.5	*16.5	*22.0	*23.5	*23.0	*23.0	*25.0	*21.0	*21.0	*17.0	*16.0	*14.5	*13.0	*14.5	13.5	12.0	*11.0	12.5	14.5	16.0	13.5
246kc																								
F _{am}	110	*109	107	*107	*106	*106	95	*94	*98	*96	*89	*93	*94	98	106	108	110	*108	*110	*112	*112	*111	*110	*110
D _u	6		7											22	14	16	12							
D _ℓ	12		9											22	18	30	32							
V _{dm}	9.0	8.5	8.0	8.0	10.0	*12.0	*12.0	*12.0	*13.0		*10.5	*8.0	*10.5	*7.0	*8.0	7.0	*4.0	*6.0	6.5	6.0	7.5	8.5	8.0	*7.0
L _{dm}	15.0	14.0	13.5	14.0	18.5	*18.5	*19.5	*22.0	23.5		*16.0	*16.0	16.0	10.0	14.0	10.5	*8.0	*10.5	11.0	10.0	13.5	15.0	14.5	*13.0
545kc																								
F _{am}	95	93	91	*91	*90	*84	*81	*87	*84	*76	*79	*80	*81	79	83	83	*88	*84	*88	*96	*95	*97	*95	*93
D _u	4	6	6											26	20	24								
D _ℓ	8	6	6											8	12	10								
V _{dm}	6.0	6.0	7.0	7.0	*4.5	*8.5	6.5			*5.5	*4.0		*7.0	*5.0	*6.0	*5.0	*10.5	*6.5	*5.5	*5.0	*7.0	5.5	*6.0	*5.0
L _{dm}	10.0	12.0	12.5	12.5	11.0	12.0	12.5			*9.5	8.0		*13.0	9.0	10.0	8.0	18.0	10.5	10.0	9.5	11.5	9.5	9.0	9.5
2.5Mc																								
F _{am}	66	66	66	64	64	58	46	44	45	*46	*46	46	46	46	46	46	46	48	56	64	64	64	64	63
D _u	6	6	4	6	6	6	4	2	1			6	8	10	18	17	17	14	8	10	10	10	6	9
D _ℓ	12	12	10	8	10	10	4	2	6			6	4	4	4	4	3	4	8	14	12	14	14	13
V _{dm}	4.0	4.5	4.0	5.0	5.5	6.0	2.5	2.5	1.5	2.0	*1.0	1.5	3.0	1.5	1.5	2.0	1.5	2.5	3.0	3.0	4.0	4.0	3.5	3.5
L _{dm}	9.0	9.0	9.0	10.0	8.0	8.0	3.5	3.0	3.0	3.0	*2.5	2.5	4.0	2.5	2.5	3.0	2.5	3.5	5.0	6.0	8.0	7.0	7.5	7.5
5Mc																								
F _{am}	60	61	61	59	59	55	45	41	41	*43	43	43	43	44	45	47	49	57	59	59	58	59	59	59
D _u	3	2	2	4	2	6	4	4	4		4	4	4	5	3	7	8	8	8	8	5	4	4	4
D _ℓ	5	6	8	2	4	6	6	6	8		8	15	8	8	9	12	6	2	6	6	5	6	4	4
V _{dm}	4.0	4.0	3.5	4.0	4.0	4.5	2.0	3.0	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.5	2.0	2.5	3.0	4.0	3.5	3.5	3.5
L _{dm}	7.5	8.0	7.5	8.0	8.5	8.5	4.5	4.0	3.0	3.0	2.5	3.0	3.5	3.5	3.5	3.0	5.0	4.0	5.0	6.0	7.0	7.5	7.5	8.0
10Mc																								
F _{am}	43	44	43	43	43	41	37	31	*29	*27	*25	25	26	27	29	37	41	45	47	45	45	45	44	43
D _u	4	3	3	4	1	2	6	8				8	7	11	10	6	4	4	4	6	4	2	3	4
D _ℓ	4	6	4	6	11	7	3	7				5	3	4	4	6	8	6	6	4	6	6	3	4
V _{dm}	4.0	3.0	3.5	4.5	4.0	4.0	3.0	3.5	*4.0	3.0	2.5	3.0	2.5	2.5	3.0	3.5	3.0	3.0	3.0	3.5	4.0	4.0	3.0	3.5
L _{dm}	7.0	7.0	7.5	7.5	7.5	7.0	6.5	5.0	*6.0	5.0	4.0	4.5	3.5	5.0	6.0	6.5	7.0	6.0	6.5	7.0	7.0	7.5	7.0	7.0
20Mc																								
F _{am}	22	22	22	22	22	24	26	28	*24	*24	*24	24	26	28	28	30	30	32	30	28	24	24	24	22
D _u	2	2	2	2	2	3	4	2				4	7	4	6	4	2	4	6	3	4	2	2	2
D _ℓ	0	0	2	2	2	2	4	6				5	2	5	4	6	4	6	6	5	2	2	2	0
V _{dm}	2.0	1.0	1.0	1.0	1.0	2.0	2.5	2.5	1.0	2.0	2.0	1.5	3.5	2.0	2.5	2.0	2.5	2.5	3.0	2.5	3.0	2.0	2.0	1.5
L _{dm}	2.5	2.5	2.5	2.5	2.0	3.0	4.5	4.0	2.5	3.5	3.5	3.5	4.5	4.0	4.0	4.0	4.5	5.0	5.0	4.0	4.5	3.0	3.5	2.5

GRAPHS OF RADIO NOISE DATA



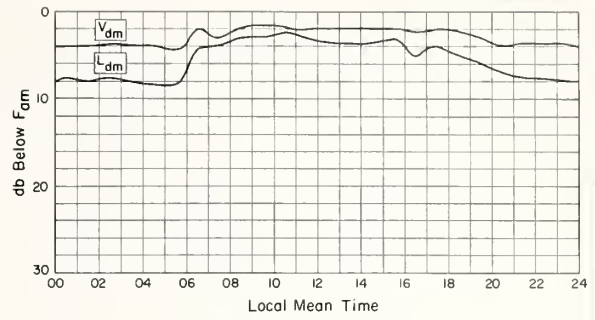
---- Data Missing



2.5 Mc

BOULDER, COLORADO

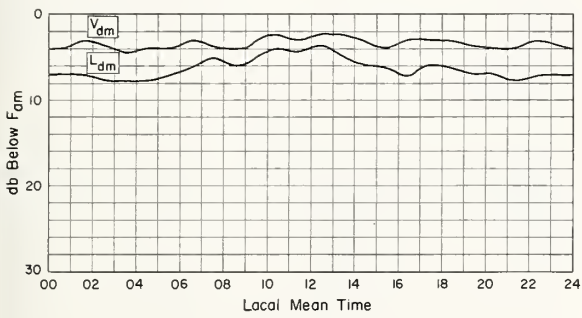
SEPTEMBER 1957



5 Mc

BOULDER, COLORADO

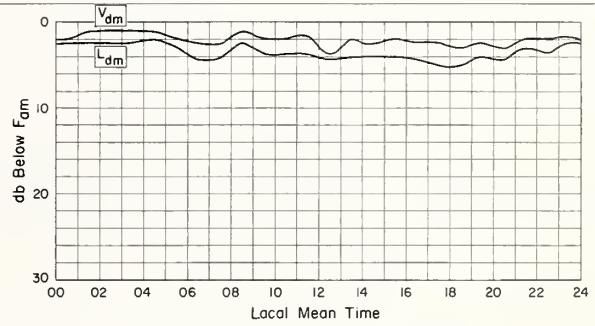
SEPTEMBER 1957



10 Mc

BOULDER, COLORADO

SEPTEMBER 1957



20 Mc

BOULDER, COLORADO

SEPTEMBER 1957

TABLES OF IONOSPHERIC DATA

Table 1

Kiruna, Sweden (67.8°N, 20.3°E) August 1957								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		5.5	315				(4.1)	2.6
01		5.4	300				(3.3)	2.5
02		5.0	310				(2.3)	2.5
03		5.0	300				(3.3)	2.5
04	---	5.6	270	---	---	1.8		2.6
05	(460)	6.0	250	3.9	110	2.1		2.6
06	450	6.0	250	4.1	110	2.6		2.6
07	(455)	6.6	240	4.4	110	2.8	(2.4)	2.6
08	405	6.6	230	4.8	105	3.0	(2.8)	2.6
09	420	6.8	230	4.9	105	3.1		2.6
10	(420)	7.0	225	5.0	105	3.1		2.6
11	400	6.9	220	5.0	105	3.2		2.6
12	430	7.0	215	5.0	105	3.2	3.0	2.6
13	435	7.0	220	5.0	105	3.2		2.6
14	(440)	6.8	225	5.0	105	3.1		2.6
15	(445)	7.0	230	4.9	105	3.0		2.6
16	---	7.0	235	---	110	2.9		2.7
17	---	6.8	245	---	110	2.7		2.8
18	---	6.6	250	---	110	2.3	2.8	2.8
19	---	6.2	260	---	115	1.8	2.4	2.7
20	---	6.1	275	---	---	---	2.4	2.7
21	---	5.8	285	---	---	---	(3.3)	2.6
22	---	5.5	305	---	---	---	(3.8)	2.6
23	---	5.4	310	---	---	---	(4.3)	2.6

Time: 15.0°E.

Sweep: 0.8 Mc to 14.0 Mc in 30 seconds.

Table 2

Fairbanks, Alaska (64.9°N, 147.8°W) August 1957								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(5.0)					3.4	(2.80)
01		(4.9)					3.5	(2.70)
02		(4.8)					3.3	(2.70)
03		(5.2)					3.7	(2.70)
04		(5.4)					2.9	(2.70)
05		(5.5)					3.6	(2.70)
06		(5.9)	(3.7)	115	2.30			(2.65)
07		6.2	4.2	110	2.65			2.65
08		6.2	4.5	103	3.00	3.1		2.60
09		6.2	4.6	103	3.20			2.60
10		6.2	4.8	101	(3.25)			2.60
11		6.5	4.9	103	3.40			2.65
12		6.4	5.0	103	(3.50)			2.60
13		6.4	5.0	102	3.50			2.60
14		6.6	(5.0)	101	3.40			2.60
15		6.7	4.8	101	3.25			2.70
16		6.6	(4.6)	103	3.05			2.75
17		6.5	(4.4)	105	2.90			2.85
18		6.6	---	109	2.50	2.8		2.95
19		6.6	---	119	2.20	2.6		3.00
20		5.8	---	---	---	2.3		3.00
21		(5.5)				2.4		(2.90)
22		(5.1)				3.0		(2.90)
23		(5.3)				3.7		(2.90)

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 3

Lycksele, Sweden (64.6°N, 18.8°E) August 1957								
Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		5.6	310				2.4	2.4
01		5.4	310				2.4	2.4
02		5.2	300		---	E	2.3	2.4
03	---	4.9	290	---	---	E	2.2	2.4
04	340	5.2	270	3.20	120	1.65	2.2	2.6
05	280	5.7	250	3.70	110	2.15		2.7
06	280	6.0	235	3.95	105	2.50		2.7
07	330	6.9	235	4.50	105	2.80	2.8	2.7
08	335	6.9	225	4.80	105	3.10	3.2	2.7
09	350	7.3	220	4.95	105	3.20	3.5	2.7
10	355	7.4	215	5.20	105	3.30	3.5	2.7
11	360	7.2	215	5.20	105	3.40	3.7	2.7
12	355	7.3	210	5.30	105	3.50		2.7
13	380	7.3	215	5.20	105	3.40		2.7
14	330	7.1	215	5.10	105	3.30		2.7
15	315	7.3	215	4.90	105	3.20		2.7
16	330	7.5	230	4.70	105	3.10		2.7
17	275	7.2	230	4.30	105	2.85	3.6	2.7
18	280	7.2	250	3.80	110	2.40	3.7	2.8
19	(270)	6.9	255	3.20	115	1.80	2.3	2.8
20		6.7	260	---	---	E	2.0	2.7
21		6.7	265	---	---	E	2.2	2.6
22		6.2	290	---	---	---	3.2	2.5
23		5.8	310	---	---	---	2.7	2.4

Time: 15.0°E.

Sweep: 1.4 Mc to 17.0 Mc in 6 minutes, automatic operation.

Table 4

Adak, Alaska (51.9°N, 176.6°W) August 1957								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		5.8	290				1.5	2.60
01		5.4	305					2.55
02		5.0	320					2.50
03		4.8	315				2.2	2.50
04		4.8	330					2.50
05	(450)	5.4	285	---	117	2.05	2.0	2.60
06	440	6.4	250	4.2	114	(2.50)	2.9	2.60
07	390	7.4	245	4.6	111	(3.00)	3.4	2.70
08	420	8.0	230	4.8	109	(3.30)	3.9	2.65
09	405	8.0	220	5.2	108	(3.50)	4.0	2.70
10	410	8.0	215	5.4	109	(3.60)	4.1	2.70
11	390	8.2	220	5.5	109	3.70	4.2	2.65
12	400	8.2	220	5.5	109	3.80	4.0	2.70
13	380	8.0	220	5.4	110	3.80	4.1	2.70
14	395	8.0	220	5.2	107	3.70		2.70
15	380	7.7	230	5.1	109	3.50		2.75
16	(385)	7.8	240	5.0	111	3.25	3.3	2.80
17	---	7.6	245	---	111	2.90	3.2	2.80
18	---	7.7	260	---	113	(2.35)	3.0	2.90
19	---	7.6	260	---	119	---	2.5	2.95
20	---	7.4	260	---	---	---	2.6	2.85
21	---	7.2	260	---	---	---	2.7	2.75
22	---	6.7	270	---	---	---	2.0	2.75
23	---	6.1	290	---	---	---		2.65

Time: 180.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 5

Schwarzenburg, Switzerland (46.8°N, 7.3°E) August 1957								
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	7.0					3.0	
01	290	6.6					2.95	
02	290	6.4					2.9	
03	280	6.2					2.9	
04	280	5.6					3.0	
05	250	5.6					3.1	
06	220	6.4	---	---	100	2.0	2.7	3.5
07	210	7.2	200	4.2	100	2.6	3.4	3.6
08	230	7.8	200	4.8	100	3.1	4.4	3.4
09	280	8.5	200	5.1	100	3.4	4.8	3.4
10	260	8.5	200	5.4	100	3.6	4.8	3.3
11	300	8.7	200	5.8	100	3.7	4.6	3.2
12	300	9.0	200	6.0	100	3.8	4.5	3.1
13	300	9.0	200	5.9	100	3.8		3.2
14	300	9.0	200	5.8	100	3.8		3.2
15	310	8.6	200	5.6	100	3.6		3.2
16	300	8.4	200	5.4	100	3.4		3.2
17	290	8.4	200	5.0	100	3.1	4.0	3.3
18	230	8.4	200	4.5	100	2.7	3.2	3.4
19	230	8.3			---	---		3.3
20	220	8.2					(3.4)	
21	240	8.0					3.2	
22	240	7.2					3.2	
23	260	7.0					3.0	

Time: 15.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 6

Maui, Hawaii (20.8°N, 156.5°W) August 1957								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		9.3	275					2.80
01		9.2	270					2.80
02		8.3	260					2.95
03		7.5	260					2.80
04		7.0	265					2.90
05		6.3	260					2.80
06		6.4	280			118	1.35	2.1
07	---	7.7	245			113	2.50	2.8
08	---	8.8	225			111	3.15	3.5
09	(295)	9.5	215			111	3.55	4.0
10	(380)	10.3	220	5.8	111	3.90	4.2	2.40
11	415	11.0	220	6.3	109	(4.10)	4.6	2.45
12	390	11.9	220	6.1	109	4.20	4.7	2.55
13	380	12.2	220	6.0	109	(4.20)	4.5	2.60
14	385	12.5	230	6.0	111	4.10	4.6	2.70
15	360	13.0	230	5.9	111	4.00	4.5	2.80
16	340	13.2	225	---	111	3.65	4.6	2.80
17	310	13.0	240		111	3.20	5.2	2.90
18	280	12.4	260		118	2.40	4.4	2.90
19		11.6	260		---	---	3.8	2.90
20		11.2	270				3.9	2.80
21		11.4	275				3.2	2.80
22		10.9	275				2.6	2.80
23		9.8	280				2.0	2.70

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 7

Point Barrow, Alaska (71.3°N, 156.8°W)								
July 1957								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	---	5.6	290		126	2.30	2.8	2.90
01	---	5.2	285		125	2.40		2.85
02	---	5.2	270	---	---	---	3.0	2.80
03	(360)	5.5	260	---	---	---	2.6	2.85
04	---	5.6	(260)	---	113	2.30		2.80
05	390	5.8	230	4.0	111	2.60		2.70
06	460	5.6	250	4.0	103	2.80		2.70
07	470	5.6	230	4.2	101	3.10		2.50
08	430	6.4	(210)	4.4	101	3.25		2.60
09	(400)	(6.4)	(215)	4.7	101	3.30		(2.70)
10	(440)	5.8	(235)	4.7	101	3.35		2.50
11	(410)	6.3	(220)	4.8	100	3.30		(2.70)
12	430	6.4	215	4.7	100	3.40		2.60
13	435	6.2	215	5.0	99	3.50		2.60
14	450	6.1	225	4.8	101	3.30		2.65
15	420	6.2	215	4.8	101	3.30		2.60
16	405	6.2	215	4.8	101	3.15		2.65
17	420	6.0	220	4.6	102	3.00		2.70
18	425	5.9	220	4.4	102	2.85		2.70
19	390	5.8	235	4.2	111	2.70		2.75
20	(380)	5.8	240	(3.9)	114	2.60		2.80
21	---	5.5	265	---	119	2.50		2.80
22	---	5.5	270	---	129	2.50		2.90
23	---	5.4	275	---	127	2.30	3.2	2.90

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 9

Fairbanks, Alaska (64.9°N, 147.8°W)								
July 1957								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(5.4)	305	---	---	---	2.7	(2.80)
01		(5.7)	320	---	---	---	---	(2.70)
02		(5.4)	315	---	---	---	3.0	(2.70)
03		(5.8)	295	---	---	---	3.8	(2.70)
04	420	(6.0)	250	(3.7)	125	2.20	---	(2.70)
05	450	(6.1)	240	4.0	111	(2.70)	2.8	(2.60)
06	410	6.6	230	4.5	109	2.90	3.2	2.55
07	420	6.8	220	4.7	105	3.10	3.4	2.50
08	430	6.6	220	4.8	104	3.40	---	2.55
09	425	6.9	210	4.9	101	3.50	---	2.60
10	450	6.8	215	5.0	101	3.50	4.2	2.55
11	450	6.5	215	5.2	103	3.60	---	2.60
12	490	6.4	210	5.1	103	3.65	---	2.50
13	480	6.2	210	5.2	103	3.60	---	2.55
14	490	6.2	210	5.0	103	(3.55)	---	2.50
15	460	6.2	220	5.0	103	3.50	---	2.55
16	430	6.2	220	(4.8)	103	3.35	---	2.60
17	(450)	6.2	225	(4.7)	103	3.10	---	2.70
18	(470)	6.0	235	4.3	109	2.90	---	2.75
19	---	6.1	240	---	<117	2.50	2.8	2.80
20	---	6.2	270	---	<131	(2.25)	2.4	2.90
21	---	5.8	275	---	123	2.30	---	2.90
22	---	(5.5)	280	---	<131	---	2.5	(2.90)
23	---	(5.4)	280	---	---	---	2.9	(2.90)

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 11

Anchorage, Alaska (61.2°N, 149.9°W)								
July 1957								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(5.6)					2.0	(2.55)
01		5.2					2.7	2.50
02		(4.8)					2.5	(2.45)
03		5.0		---	151	(1.70)	2.2	2.45
04		5.4		3.6	119	2.00	2.6	2.50
05		6.1		3.9	111	2.45	3.0	2.45
06		6.4		4.3	109	2.85	---	2.40
07		6.6		4.6	109	3.10	---	2.40
08		7.0		4.8	105	3.30	---	2.35
09		6.9		5.0	105	3.40	---	2.40
10		6.8		5.1	106	3.50	---	2.35
11		6.8		5.1	106	3.60	---	2.40
12		6.6		5.2	105	(3.65)	---	2.35
13		6.3		5.1	107	(3.70)	---	2.40
14		6.3		5.1	105	(3.60)	---	2.40
15		6.4		5.1	105	3.50	---	2.45
16		6.3		5.0	105	3.35	---	2.45
17		6.2		4.9	105	3.10	---	2.55
18		6.2		4.5	111	2.80	---	2.60
19		6.2		---	117	2.45	---	2.65
20		6.3		---	129	2.05	2.9	2.70
21		6.3		---	---	---	2.4	2.70
22		6.1		---	---	---	1.7	2.70
23		5.8		---	---	---	1.8	2.60

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 8

Tromsø, Norway (69.7°N, 19.0°E)								
July 1957								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	(305)	5.8	---	---	---	2.00	3.8	2.50
01	(310)	5.6	(320)	---	---	---	3.8	2.40
02	(360)	6.0	---	---	---	---	3.7	2.40
03	(430)	5.9	(295)	3.70	---	2.30	4.0	2.45
04	450	6.0	255	4.00	105	2.60	2.8	2.55
05	460	6.0	250	4.20	105	2.80	---	2.50
06	450	6.4	250	4.55	105	3.00	---	2.55
07	460	6.8	245	4.70	100	3.15	---	2.55
08	450	6.8	240	5.00	100	3.30	---	2.50
09	455	7.1	230	5.15	105	3.40	---	2.50
10	430	7.1	225	5.30	100	3.50	---	2.55
11	450	6.9	220	5.20	100	3.60	---	2.45
12	450	6.9	215	5.30	100	3.60	---	2.55
13	450	6.8	220	5.20	100	3.60	---	2.55
14	505	6.7	230	5.20	100	3.55	---	2.45
15	495	6.6	235	5.00	105	3.40	---	2.55
16	515	6.5	235	4.80	100	3.20	---	2.55
17	(515)	6.3	245	4.80	100	3.10	---	2.55
18	---	6.4	250	---	105	2.90	3.0	2.70
19	---	6.6	255	---	110	2.70	3.0	2.70
20	---	6.4	265	---	110	2.60	2.8	2.70
21	---	6.2	(285)	---	120	2.30	3.0	2.65
22	310	6.1	(295)	---	---	2.30	3.0	2.60
23	(300)	6.0	---	---	---	2.15	2.9	2.50

Time: 15.0°E.
Sweep: 0.7 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 10

Reykjavik, Iceland (64.1°N, 21.8°W)								
July 1957								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(4.6)					4.2	----
01		>4.8					3.6	(2.50)
02		4.3					3.9	(2.40)
03		(4.8)					2.9	(2.50)
04		(5.0)		---	122	2.20	---	(2.60)
05		5.6		---	117	2.50	---	2.70
06		5.8		(4.1)	113	2.70	---	2.70
07		6.1		4.6	110	3.05	---	2.65
08		6.3		(4.8)	110	3.20	---	2.65
09		6.2		5.0	111	3.40	---	2.60
10		6.6		5.2	109	3.55	---	2.55
11		6.8		5.3	109	(3.60)	---	2.55
12		6.8		5.3	111	>3.60	---	2.55
13		7.0		5.4	109	>3.60	---	2.50
14		6.8		5.2	109	3.65	---	2.55
15		6.9		5.3	111	3.60	---	2.60
16		6.8		5.0	109	3.50	---	2.60
17		6.4		4.9	111	3.30	---	2.60
18		6.2		(4.6)	109	3.10	---	2.60
19		6.2		---	113	2.80	3.0	2.70
20		(5.9)		---	121	2.60	3.2	(2.70)
21		(5.7)		---	---	---	3.3	(2.60)
22		(5.5)		---	---	---	4.0	(2.55)
23		(4.9)		---	---	---	4.3	----

Time: 15.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 16.2 seconds.

Table 12

Nurmijarvi, Finland (60.5°N, 24.6°E)								
July 1957								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.9						2.60
01		6.5						2.60
02		6.3						2.50
03		6.4						2.60
04		5.9		---			2.6	2.60
05		6.4		3.8		---	---	2.65
06		6.8		4.3		2.70	2.8	2.65
07		6.6		4.5		3.00	3.2	2.60
08		7.0		4.9		3.20	3.7	2.70
09		7.1		5.2		3.45	3.8	2.60
10		7.7		5.3		3.60	4.2	2.60
11		7.7		5.4		3.70	4.1	2.65
12		7.6		5.4		---	4.0	2.60
13		7.4		5.4		---	---	2.60
14		7.3		5.4		---	---	2.60
15		7.3		5.3		---	---	2.60
16		7.2		5.1		---	---	2.70
17		7.2		5.1		---	---	2.70
18		7.2		---		2.90	3.2	2.70
19		7.0		---		---	2.8	2.70
20		7.2		---		---	4.4	2.80
21		7.3		---		---	(3.8)	2.80
22		7.4		---		---	---	2.70
23		7.6		---		---	---	2.60

Time: 30.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 1 minute.

Table 13

Oe Bilt, Holland (52.1°N, 5.2°E)								July 1957	
Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2	
00	295	7.0					2.5	2.60	
01	300	6.4					1.8	2.65	
02	300	6.3						2.60	
03	295	6.0						2.70	
04	270	6.1	270	---	---	E	2.2	2.75	
05	(275)	6.2	245	---	115	2.4	2.9	2.80	
06	380	6.7	230	4.5	110	3.0	3.5	2.80	
07	365	7.1	225	5.0	105	3.3	3.8	2.80	
08	350	7.5	225	5.1	105	3.6	4.2	2.80	
09	400	7.8	215	5.5	105	3.8	4.3	2.70	
10	370	8.0	210	5.6	105	3.9	4.4	2.75	
11	400	7.8	200	5.6	105	4.0	4.5	2.75	
12	380	8.0	220	5.7	105	4.0	4.6	2.75	
13	410	7.6	210	5.7	105	4.0	4.6	2.70	
14	400	7.8	220	5.6	105	3.9	4.3	2.70	
15	390	7.7	220	5.6	105	3.8	4.2	2.80	
16	380	7.6	220	5.2	105	3.5	4.0	2.80	
17	(360)	7.7	230	4.9	110	3.2	3.5	2.85	
18	(300)	7.8	240	---	110	2.8	3.8	2.90	
19	260	7.8	---	---	130	2.2	3.5	3.00	
20	255	7.3					2.4	2.90	
21	270	7.7						2.75	
22	280	7.3						2.70	
23	300	7.2						2.70	

Time: 0.0°.

Sweep: 1.4 Mc to 16.0 Mc in 40 seconds.

Table 14

Adak, Alaska (51.9°N, 176.6°W)								July 1957	
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	(6.4)	310					2.3	(2.55)	
01	6.0	315						2.50	
02	(5.7)	320						2.45	
03	5.4	345						2.40	
04	(455)	5.6	<310	---	109	(1.80)		2.40	
05	475	6.3	280	3.8	117	(2.40)	2.6	2.40	
06	460	6.8	255	4.4	115	(2.90)	3.2	2.40	
07	450	7.2	240	4.7	113	3.20	3.8	2.40	
08	445	7.3	240	5.2	109	3.50	4.3	2.40	
09	450	7.6	235	5.2	110	3.70	4.6	2.45	
10	470	7.8	225	5.4	109	(3.80)	4.6	2.50	
11	460	7.6	220	5.5	111	(3.85)	4.6	2.45	
12	450	7.2	220	5.5	111	(3.80)	4.3	2.45	
13	470	7.0	215	5.5	111	(3.80)	4.1	2.50	
14	450	7.2	220	5.4	111	3.80	4.0	2.55	
15	465	6.9	230	5.3	110	3.70	3.9	2.55	
16	440	6.7	235	5.1	109	3.50	3.6	2.60	
17	415	6.8	245	4.8	111	3.15	3.7	2.65	
18	(360)	6.9	260	---	117	2.70	3.6	2.70	
19		7.0	280		(120)	(2.15)	2.9	2.75	
20		7.0	285		---	---	2.7	2.75	
21		7.1	285				2.5	2.65	
22		7.0	290				3.1	2.60	
23		6.8	300				3.0	2.55	

Time: 180.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 15

Winnipeg, Canada (49.9°N, 97.4°W)								July 1957	
Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2	
00		5.2	300				3.5	2.65	
01		4.8	300				4.5	2.6	
02		4.5	300				4.0	2.55	
03		4.3	310				3.5	2.4	
04		4.2	300	---	---	---	3.4	2.6	
05	(310)	4.6	290		130	2.0	3.0	2.75	
06	360	5.4	250	4.0	110	2.5		2.8	
07	410	5.6	230	4.5	100	3.0		2.7	
08	440	6.0	230	4.8	100	3.3		2.5	
09	460	6.2	210	5.0	100	3.5		2.6	
10	480	6.4	210	5.1	100	3.9		2.5	
11	500	6.5	210	5.1	100	4.0		2.5	
12	500	6.5	210	5.1	100	4.0		2.5	
13	510	6.5	210	5.2	100	4.0		2.4	
14	490	6.6	210	5.2	100	4.0		2.4	
15	490	6.6	220	5.1	100	3.9		2.4	
16	460	6.8	220	5.0	100	3.8		2.5	
17	440	6.8	230	4.9	100	3.3		2.6	
18	380	6.9	230	4.6	105	3.0		2.7	
19	320	6.8	250	---	110	2.5		2.8	
20	---	6.9	280		125	2.0	2.1	2.8	
21		6.9	270		---	---	<1.9	2.8	
22		6.6	280				2.0	2.7	
23		5.9	280				<1.5	2.7	

Time: 90.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 16

St. John's, Newfoundland (47.6°N, 52.7°W)								July 1957	
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00		6.3	290					3.1	2.60
01		6.0	290						2.70
02		5.5	280						2.60
03		5.1	300						2.70
04		5.0	280						2.80
05	---	5.6	250				115	2.45	2.90
06	(350)	6.0	235	4.4	109	3.00	3.0	2.85	
07	465	6.2	230	5.0	105	3.25	3.5	2.80	
08	500	6.6	220	5.2	105	3.50	3.8	2.75	
09	470	6.4	210	5.4	105	(3.65)	4.0	2.60	
10	490	6.6	210	5.4	103	(3.75)	3.8	2.60	
11	430	6.6	210	5.5	103	3.95	4.0	2.60	
12	480	6.6	210	5.6	105	(3.95)		2.60	
13	440	6.8	215	5.5	105	4.00		2.50	
14	440	6.9	220	5.4	105	3.85		2.60	
15	440	7.2	220	5.4	105	3.65		2.60	
16	405	7.4	220	5.0	107	3.40		2.70	
17	380	7.6	240	4.6	110	3.05		2.70	
18	---	7.8	260	---	119	2.55	2.9	2.70	
19	---	8.0	280	---	---	---	2.3	2.70	
20		7.8	270	---	---	---	3.0	2.70	
21		7.8	275	---	---	---	1.6	2.60	
22		7.1	280				3.1	2.60	
23		6.4	280				2.4	2.60	

Time: 60.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 17

Schwarzenburg, Switzerland (46.8°N, 7.3°E)								July 1957	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	290	7.3						2.9	
01	280	7.2						2.9	
02	300	6.8						3.0	
03	290	6.6						2.9	
04	270	6.2						3.0	
05	270	6.2	---	---	---	---		3.1	
06	240	6.6	230	4.1	100	2.4	2.6	3.3	
07	250	7.5	210	4.8	100	3.0	4.0	3.3	
08	300	7.8	200	5.2	100	3.3	4.8	3.2	
09	310	8.7	200	5.6	100	3.5	5.6	3.1	
10	320	8.5	200	5.8	100	3.8	5.5	3.1	
11	340	8.7	200	6.0	100	3.9	5.8	3.05	
12	360	8.7	200	6.1	100	4.0	5.4	3.0	
13	360	8.8	200	5.9	100	4.0	4.8	3.0	
14	360	8.4	200	6.0	100	4.0	4.6	3.0	
15	350	8.4	200	5.7	100	3.8		3.0	
16	340	8.5	200	5.6	100	3.7	4.8	3.1	
17	320	8.0	210	5.4	100	3.4	5.0	3.1	
18	280	8.0	210	4.8	100	3.0	4.0	3.2	
19	250	8.1	---	---	100	2.5	3.6	3.3	
20	250	8.1					3.3	3.3	
21	250	8.0					2.8	3.2	
22	280	8.0					4.4	(3.15)	
23	280	7.7						2.95	

Time: 15.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 18

San Francisco, California (37.4°N, 122.2°W)								July 1957
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		5.8	315				4.0	2.50
01		6.0	320				3.6	2.50
02		5.6	315				3.0	2.55
03		5.4	310				3.0	2.55
04		5.2	310				3.2	2.55
05	---	5.4	300		---	----	2.7	2.70
06	---	6.2	260	---	115	2.45	3.2	2.75
07	(470)	7.0	240	4.6	109	>3.00	3.7	2.60
08	400	8.0	220	5.2	107	3.45	4.2	2.50
09	460	8.3	220	5.2	105	3.70	4.2	2.45
10	425	8.6	205	5.4	109	3.90	4.5	2.50
11	420	8.6	215	5.6	109	4.00	4.5	2.50
12	435	8.6	210	5.6	109	4.00	4.4	2.50
13	410	8.8	210	5.5	109	4.00	4.2	2.50
14	400	8.7	230	5.5	109	4.00	4.1	2.50
15	395	8.6	230	5.5	109	3.85	4.0	2.55
16	385	8.2	230	5.2	109	3.65	4.0	2.60
17	375	7.9	240	4.9	109	3.30	3.7	2.65
18	---	7.8	250	---	115	2.80	3.2	2.75
19		7.7	270		123	2.20	2.3	2.80
20		7.4	260				3.4	2.80
21		7.1	260				3.9	2.65
22		6.4	280				4.2	2.60
23		6.0	290				3.7	2.55

Table 19
White Sands, New Mexico (32.3°N, 106.5°W)

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.4	300				3.8	2.55
01		6.4	<300				4.0	2.55
02		6.2	<300				3.5	2.60
03		5.9	290				3.4	2.60
04		5.8	<290				3.0	2.60
05		5.6	300		119	----	2.6	2.65
06		6.7	250		113	(2.40)	2.7	2.80
07	(400)	7.9	235	4.6	109	(3.10)	3.6	2.75
08	390	8.9	220	5.0	107	(3.45)	4.0	2.65
09	370	9.2	210	5.6	107	(3.75)	4.3	2.60
10	390	9.4	210	5.6	107	(4.00)	4.5	2.50
11	410	9.8	215	5.9	107	(4.00)	4.6	2.50
12	400	10.0	210	5.8	107	(4.15)	4.6	2.50
13	410	9.8	210	5.8	107	(4.00)	4.5	2.50
14	400	9.6	215	5.7	107	4.00	4.4	2.50
15	395	9.3	220	5.5	107	(3.90)	4.2	2.55
16	390	8.8	230	5.3	107	(3.60)	3.8	2.60
17	355	8.6	240	---	108	3.25	3.7	2.65
18	---	8.4	250	---	111	(2.70)	3.2	2.70
19		8.3	270	---	---	----	2.8	2.80
20		7.8	250	---	---	----	3.2	2.70
21		7.1	260	---	---	----	4.4	2.65
22		6.7	<280	---	---	----	4.0	2.60
23		6.3	295	---	---	----	4.0	2.55

Time: 105.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 20
Grand Bahama I. (26.6°N, 78.2°W)

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.9	280				3.5	2.70
01		7.6	290				3.0	2.75
02		7.0	275				2.4	2.70
03		6.8	280				3.0	2.70
04		6.4	290				2.9	2.70
05		6.3	280				3.0	2.75
06		7.1	260		119	2.10	2.5	2.85
07	---	8.0	240	---	109	3.00	3.8	2.90
08	370	8.8	225	5.2	105	3.40	4.2	2.70
09	340	9.4	220	5.4	105	(3.70)	4.5	2.70
10	380	9.8	<210	5.8	107	4.00	4.5	2.60
11	380	9.9	210	5.8	109	4.15	4.6	2.55
12	375	10.2	215	5.9	109	4.25	4.4	2.60
13	380	10.4	215	5.9	109	4.20	2.60	2.55
14	380	10.0	<220	5.8	109	4.15	2.60	2.55
15	370	9.8	220	5.8	109	4.00	4.4	2.60
16	370	9.8	230	5.5	109	3.75	4.2	2.60
17	340	9.5	235	4.8	109	3.30	3.9	2.60
18	330	9.2	250	---	111	2.70	3.4	2.70
19		9.0	265	---	---	----	3.4	2.70
20		8.8	260	---	---	----	4.0	2.70
21		8.2	275	---	---	----	3.1	2.60
22		7.9	285	---	---	----	3.2	2.60
23		7.9	300	---	---	----	4.0	2.60

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 21
Maui, Hawaii (20.8°N, 156.5°W)

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		9.0	300					2.70
01		8.1	290					2.70
02		8.0	290					2.70
03		7.5	280					2.70
04		7.0	295					2.70
05		6.6	290					2.70
06		6.6	280		123	(1.80)	2.75	2.70
07	---	7.7	250	---	113	2.70	3.1	2.90
08	---	8.0	230	---	111	3.30	3.8	2.70
09	(605)	9.0	220	---	109	(3.60)	4.1	2.40
10	420	9.6	215	6.2	109	(3.90)	4.5	2.25
11	445	10.4	215	6.1	109	(4.00)	4.4	2.35
12	425	11.0	220	6.1	109	(4.20)	4.6	2.40
13	415	11.4	220	6.1	109	(4.20)	4.5	2.50
14	415	11.9	220	6.1	109	(4.10)	4.5	2.50
15	395	12.3	230	5.9	109	3.90	4.4	2.60
16	365	12.7	230	5.6	109	3.70	4.2	2.70
17	335	12.5	240	---	111	3.30	4.1	2.75
18	310	11.7	250	---	115	(2.70)	4.1	2.80
19		11.2	275	---	---	----	3.1	2.80
20		10.9	280	---	---	----	3.4	2.70
21		10.5	290	---	---	----	3.0	2.70
22		9.9	300	---	---	----	2.4	2.65
23		9.4	300	---	---	----		2.70

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 22

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		10.2	275				(3.2)	2.80
01		9.7	255				(2.6)	2.90
02		8.8	250				(2.8)	2.85
03		8.0	265				(2.3)	2.80
04		7.7	265				(4.4)	2.80
05		7.3	260				(3.5)	2.80
06		7.2	275				3.5	2.90
07	---	8.6	240	---	111	(2.60)	2.8	3.00
08	---	9.2	230	---	109	(3.15)	3.5	2.95
09	340	9.6	220	5.5	109	3.65	4.0	2.70
10	350	10.2	215	5.6	109	(3.90)	4.2	2.65
11	365	11.1	210	5.9	109	(4.00)	4.5	2.55
12	360	11.7	210	5.9	109	4.15	4.3	2.60
13	365	11.9	220	6.0	109	4.20	4.5	2.60
14	370	12.0	215	6.0	109	4.15	4.5	2.60
15	360	11.5	225	5.9	110	4.00	4.4	2.60
16	355	11.4	220	5.6	111	3.75	4.2	2.60
17	340	11.1	235	5.2	111	3.35	3.9	2.70
18	305	10.8	250	---	114	(2.70)	3.6	2.70
19		10.3	270	---	---	----	2.8	2.65
20		10.3	275	---	---	----	3.9	2.60
21		10.3	295	---	---	----	3.2	2.65
22		10.2	290	---	---	----	(2.8)	2.65
23		10.3	290	---	---	----	(2.8)	2.70

Time: 60.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 23
Huancayo, Peru (12.0°S, 75.3°W)

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		8.0	230					2.95
01		8.0	225					3.00
02		7.8	225					3.10
03		6.7	225					3.15
04		5.6	230					3.20
05		4.4	235					3.20
06		4.3	250	---	---	E	4.4	2.90
07		7.8	260	---	121	2.35	5.8	3.00
08		10.1	240	---	109	3.10	7.2	2.85
09		10.7	225	---	109	3.60	8.4	2.60
10	---	10.7	215	---	109	---	8.8	2.45
11	---	10.6	210	---	109	---	8.9	2.30
12	---	10.1	210	---	109	(4.00)	8.9	2.30
13	---	10.1	205	---	109	---	9.0	2.25
14	---	10.2	210	---	109	---	8.7	2.20
15	---	9.9	215	---	109	---	8.0	2.20
16	---	9.5	235	---	109	---	7.6	2.25
17		9.4	260	---	110	2.55	6.6	2.25
18		9.0	295	---	---	E	4.4	2.30
19		8.5	340	---	---	---		2.25
20		8.4	300	---	---	---	2.7	2.35
21		8.5	260	---	---	---	3.0	2.55
22		8.4	230	---	---	---	3.1	2.75
23		8.2	225	---	---	---	(3.2)	2.90

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 24
Resolute Bay, Canada (74.7°N, 94.9°W)

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00	(370)	5.9	270	3.8	100	2.4		(2.7)
01	400	6.0	270	3.8	100	2.4		(2.8)
02	380	5.3	260	3.8	100	2.5		---
03	(390)	5.5	250	4.0	100	2.6		(2.8)
04	410	5.3	250	4.0	100	2.8		(2.8)
05	440	5.4	250	4.1	100	3.0		(2.4)
06	480	5.2	240	4.3	100	3.1		---
07	520	5.2	230	4.7	100	3.2		(2.3)
08	590	5.1	230	4.7	100	3.3		G
09	620	5.4	220	4.8	100	3.5		---
10	560	5.6	230	4.8	100	3.6		G
11	660	5.1	220	4.8	100	3.7		G
12	630	5.2	230	4.8	100	3.7		G
13	600	5.4	220	4.8	100	3.7		G
14	580	5.5	230	4.8	100	3.6		G
15	560	5.5	220	4.8	100	3.6		G
16	580	5.7	230	4.8	100	3.4		G
17	560	5.5	220	4.7	100	3.3		2.45
18	480	5.6	220	4.5	100	3.1		(2.45)
19	500	5.6	240	4.4	100	3.0		(2.45)
20	460	5.7	250	4.1	100	2.9		(2.5)
21	440	5.5	260	4.0	100	2.7		---
22	380	6.0	270	3.8	100	2.6		(2.75)
23	400	6.0	260	3.9	100	2.5		(2.5)

Time: 90.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 25

Tromsø, Norway (69.7°N, 19.0°E)

June 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	(370)	5.6	(370)	----	----	2.45	3.2	2.40
01	(440)	5.5	----	3.20	----	----	4.0	2.40
02	----	6.0	----	----	----	2.35	4.0	2.45
03	440	6.5	(280)	4.00	110	2.40	4.0	2.40
04	(445)	6.6	255	4.25	105	2.70	3.0	2.50
05	(490)	6.4	250	4.45	110	3.00	----	2.45
06	460	6.3	245	4.75	105	3.10	----	2.40
07	500	6.4	245	4.90	105	3.30	----	2.40
08	490	6.6	240	5.00	105	3.45	----	2.40
09	540	6.8	240	5.15	105	3.60	----	2.40
10	530	6.8	240	5.20	100	3.70	----	2.40
11	505	6.8	240	5.30	105	3.70	----	2.40
12	520	6.6	240	5.30	105	3.70	----	2.40
13	540	6.4	240	5.30	105	3.70	----	2.40
14	530	6.5	240	5.20	100	3.60	----	2.40
15	510	6.2	235	5.25	105	3.55	----	2.50
16	(490)	6.3	245	5.00	105	3.45	----	2.45
17	----	6.4	250	----	105	3.20	----	2.55
18	----	6.4	250	----	110	3.00	----	2.55
19	----	6.4	255	----	110	2.80	3.3	2.55
20	----	6.4	275	----	110	2.80	3.0	2.55
21	----	6.6	(300)	----	115	2.80	----	2.55
22	----	6.0	----	----	----	----	4.0	2.50
23	----	6.1	----	----	----	----	3.4	2.50

Time: 15.0°E.

Sweep: 0.7 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 26

Lycksele, Sweden (64.6°N, 18.8°E)

June 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00	----	6.2	325	----	----	----	2.8	2.4
01	----	6.5	330	----	----	----	E	3.0
02	340	6.2	300	3.00	110	1.60	2.4	2.4
03	340	6.4	270	3.30	105	1.90	3.2	2.4
04	360	6.3	255	3.85	105	2.35	----	2.4
05	430	6.2	250	4.35	105	2.65	----	2.4
06	420	6.8	230	4.80	105	2.95	----	2.4
07	430	6.8	230	5.00	105	3.20	3.4	2.4
08	450	7.0	225	5.10	105	3.35	3.8	2.4
09	440	7.0	220	5.30	105	3.50	----	2.4
10	465	7.0	220	5.40	105	3.60	4.0	2.4
11	480	7.0	220	5.45	105	3.65	4.0	2.4
12	490	6.8	220	5.45	105	3.70	----	2.4
13	505	6.8	220	5.40	105	3.70	----	2.4
14	480	6.6	220	5.30	105	3.50	----	2.4
15	475	6.8	220	5.30	105	3.40	----	2.4
16	420	6.8	225	5.10	105	3.30	3.5	2.5
17	400	6.8	230	5.00	105	3.10	3.8	2.55
18	360	6.9	250	4.60	105	2.80	4.0	2.6
19	320	7.0	255	4.10	105	2.45	4.2	2.6
20	310	6.8	270	3.60	110	2.10	3.6	2.6
21	----	6.8	285	----	125	1.70	2.6	2.5
22	----	6.5	310	----	----	----	E	2.6
23	----	6.2	320	----	----	----	----	2.6

Time: 15.0°E.

Sweep: 1.4 Mc to 17.0 Mc in 6 minutes, automatic operation.

Table 27

Baker Lake, Canada (64.3°N, 96.0°W)

June 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00	----	5.7	290	----	115	1.7	4.0	----
01	----	5.6	290	----	120	1.7	<3.8	----
02	----	5.3	290	----	110	1.8	4.0	----
03	----	5.0	290	----	110	2.0	4.4	----
04	400	5.0	280	3.6	110	2.3	4.2	----
05	460	5.2	240	4.0	110	2.6	<5.0	----
06	530	5.3	240	4.3	105	3.0	5.0	----
07	480	5.2	230	4.5	100	3.2	5.6	----
08	590	5.4	220	4.7	100	3.6	5.7	G
09	580	5.8	220	4.8	100	3.7	6.0	G
10	550	5.7	230	5.0	100	3.9	6.0	G
11	540	6.2	230	5.1	100	3.9	6.0	2.5
12	500	6.8	220	5.2	100	4.0	5.8	(2.4)
13	480	6.8	220	5.2	100	3.9	6.0	(2.5)
14	470	6.7	220	5.1	100	3.8	5.5	(2.45)
15	460	6.4	210	5.0	100	3.8	<5.6	(2.45)
16	500	6.0	220	5.0	100	3.6	<4.9	G
17	430	6.2	220	4.8	100	3.4	5.9	----
18	420	6.4	230	4.8	105	3.2	5.2	----
19	420	6.1	240	4.5	105	2.9	<4.9	----
20	(460)	6.0	270	4.0	110	2.4	6.0	----
21	----	5.8	290	----	115	2.3	7.4	----
22	----	6.0	290	----	115	2.0	5.5	----
23	----	5.9	300	----	110	1.8	4.8	----

Time: 90.0°W.

Sweep: 1.0 Mc to 16.0 Mc in 16 seconds.

Table 28

Oslo, Norway (60.0°N, 11.1°E)

June 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00	----	7.4	315	----	----	----	2.4	2.45
01	----	7.1	315	----	----	----	2.6	2.40
02	----	6.8	315	----	----	----	2.7	2.40
03	----	6.5	315	----	----	1.80	3.0	2.45
04	----	6.6	280	----	----	2.10	3.2	2.40
05	(550)	6.6	260	3.90	----	2.60	3.2	2.45
06	(500)	6.6	250	4.25	100	2.90	3.7	2.45
07	500	6.9	245	4.70	100	3.15	3.6	2.45
08	495	7.0	245	5.00	100	3.45	4.0	2.40
09	475	7.6	240	5.25	100	3.60	5.2	2.45
10	500	7.4	240	5.35	100	3.75	4.4	2.40
11	500	7.2	240	5.50	100	3.80	4.2	2.40
12	480	7.0	225	5.50	100	3.80	4.2	2.40
13	525	7.0	225	5.55	100	3.90	4.2	2.40
14	490	7.0	235	5.50	100	3.80	4.2	2.40
15	495	7.1	235	5.30	100	3.75	4.1	2.40
16	515	7.3	245	5.20	100	3.60	3.8	2.45
17	(460)	7.4	250	4.90	105	3.35	4.0	2.55
18	----	7.5	250	----	110	3.10	3.9	2.55
19	----	7.4	260	----	110	2.75	4.0	2.55
20	----	6.9	280	----	----	2.35	3.2	2.70
21	----	6.9	290	----	----	1.95	2.8	2.60
22	----	6.8	300	----	----	----	2.2	2.55
23	----	7.0	315	----	----	----	3.3	2.45

Time: 15.0°E.

Sweep: 0.7 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 29

Uppsala, Sweden (59.8°N, 17.6°E)

June 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00	----	7.0	315	----	----	----	2.8	2.3
01	----	6.8	320	----	----	E	2.8	2.3
02	----	6.6	325	----	----	E	3.1	2.3
03	375	6.6	300	3.10	125	1.70	3.4	2.3
04	375	6.8	265	3.80	115	2.20	3.8	2.4
05	415	6.6	250	4.50	110	2.60	5.2	2.3
06	400	6.8	245	4.90	110	3.00	6.8	2.4
07	430	7.0	240	5.20	105	3.30	6.8	2.35
08	450	7.3	240	5.20	105	3.50	6.8	2.4
09	435	7.5	230	5.40	105	3.60	6.9	2.4
10	465	7.4	225	5.50	105	3.70	6.4	2.3
11	495	7.3	220	5.50	105	3.80	7.0	2.3
12	495	7.2	225	5.55	105	3.80	6.6	2.3
13	475	7.2	220	5.60	105	3.80	7.2	2.3
14	475	7.1	235	5.50	105	3.70	6.7	2.4
15	440	7.0	230	5.50	105	3.60	4.8	2.4
16	430	7.0	240	5.40	105	3.50	4.9	2.4
17	380	7.2	245	5.20	105	3.25	5.2	2.5
18	355	7.3	255	4.00	110	2.95	4.8	2.5
19	335	7.2	275	4.00	115	2.50	5.0	2.5
20	(335)	7.2	280	3.70	130	2.00	4.5	2.5
21	----	7.0	290	----	----	1.55	3.3	2.5
22	----	7.0	295	----	----	E	2.7	2.4
23	----	7.1	305	----	----	----	----	2.4

Time: 15.0°E.

Sweep: 1.4 Mc to 17.0 Mc in 6 minutes, automatic operation.

Table 30

Churchill, Canada (58.8°N, 94.2°W)

June 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		5.2	310		---	1.2	6.5	
01		5.0	300			1.4	6.2	
02	---	5.2	320	---	130	1.5	5.0	---
03	---	5.0	320	---	110	2.0	5.0	---
04	(360)	5.0	300	---	100	(2.4)	5.0	---
05	400	5.2	270	4.0	100	2.9	5.0	---
06	500	5.4	250	4.4	100	3.1	5.2	(2.5)
07	580	5.5	250	4.6	100	3.6	4.9	(2.4)
08	580	5.6	250	4.9	100	3.8	4.4	2.3
09	560	6.0	240	5.0	100	3.8		(2.5)
10	520	6.1	230	5.2	100	3.9		2.4
11	530	6.6	220	5.3	100	4.0		2.4
12	540	6.7	220	5.3	100	4.0		2.4
13	520	6.8	220	5.3	100	4.0		2.4
14	500	7.0	220	5.3	100	3.9		2.4
15	480	7.0	220	5.1	100	3.9		2.5
16	460	6.8	230	5.0	100	3.7		2.5
17	430	7.0	240	5.0	100	3.4	4.2	2.5
18	440	6.5	260	4.7	100	3.5		(2.5)
19	440	6.1	280	4.2	110	3.0		(2.6)
20	(420)	5.6	300	---	110	3.0	4.3	(2.65)
21		5.7	340		110	2.7	4.3	---
22		5.6	320		120	2.0	6.0	---
23		5.4	310		120	(2.0)	6.0	---

Table 31

De Bilt, Holland (52.1°N, 5.2°E)

June 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	295	7.5					2.2	2.6
01	300	7.2						2.6
02	300	6.8						2.6
03	310	6.9			130	1.7	2.0	2.6
04	280	7.0	280	3.4	125	2.1	2.5	2.6
05	350	7.3	240	4.0	110	2.7	3.4	2.7
06	375	7.5	230	4.8	105	3.1	3.8	2.7
07	405	7.4	235	5.2	100	3.4	4.2	2.7
08	380	8.0	220	5.5	100	3.7	4.7	2.7
09	390	7.9	225	5.6	100	4.0	5.0	2.6
10	415	8.0	225	5.8	100	4.0	4.3	2.5
11	420	8.2	220	5.9	100	4.2	4.6	2.6
12	410	8.2	230	6.0	100	4.2	4.3	2.65
13	410	8.0	230	6.0	100	4.1	4.7	2.65
14	400	8.0	235	5.9	100	4.0	4.2	2.65
15	390	8.0	230	5.7	100	3.9	4.2	2.7
16	380	8.0	230	5.5	100	3.7	4.2	2.7
17	350	7.6	240	5.1	110	3.3	4.0	2.8
18	300	7.8	230	4.4	110	2.8	4.6	2.8
19	270	7.6	---	---	120	2.1	4.4	2.85
20	270	7.5					3.6	2.8
21	290	7.6					2.7	2.6
22	300	7.8						2.65
23	300	7.5					2.6	2.6

Time: 0.0°.

Sweep: 1.4 Mc to 16.0 Mc in 40 seconds.

Table 32

Lindau/Harz, Germany (51.6°N, 10.1°E)

June 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		7.85	305				3.3	2.45
01		7.55	300				3.0	2.45
02		7.30	300				3.0	2.47
03		7.10	305				3.2	2.46
04	---	7.00	310	---	---	---	3.2	2.54
05	---	7.25	265	---	108	2.15	3.5	2.55
06	---	7.65	250	---	104	2.75	4.2	2.55
07	480	8.00	240	4.75	102	3.15	5.2	2.57
08	435	7.90	230	5.30	102	3.50	5.5	2.58
09	445	8.35	230	5.60	100	3.70	5.6	2.50
10	430	8.20	225	5.70	100	3.85	5.4	2.50
11	425	8.35	215	5.80	100	3.95	5.5	2.48
12	465	8.30	225	5.80	100	4.00	5.7	2.48
13	455	8.10	230	5.90	100	3.95	5.6	2.48
14	430	7.90	230	5.70	100	3.90	5.3	2.50
15	420	8.10	230	5.65	100	3.85	5.1	2.55
16	415	8.00	235	5.40	102	3.65	5.1	2.57
17	420	8.00	235	5.15	102	3.45	5.3	2.60
18	---	8.10	250	---	106	3.10	4.9	2.65
19	---	8.25	260	---	108	2.60	5.2	2.70
20		8.15	275		108	---	4.8	2.74
21		8.00	275		---	---	4.3	2.61
22		8.15	290				3.0	2.52
23		8.25	300				3.0	2.46

Time: 15.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 4 minutes.

Table 33

Winnipeg, Canada (49.9°N, 97.4°W)

June 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		5.0	300				4.0	2.70
01		5.0	300				3.2	(2.60)
02		5.0	310				4.4	2.60
03		4.5	320				4.1	2.60
04		4.7	320				3.0	2.55
05	380	5.0	290		120	2.1		2.70
06	390	5.4	250	4.0	110	2.8		2.60
07	440	5.8	240	4.6	105	3.1		2.50
08	500	6.1	230	4.9	105	3.5		2.45
09	520	6.0	220	5.0	100	3.8		2.40
10	540	6.3	220	5.0	100	3.9		2.40
11	550	6.4	210	5.2	100	4.0		2.30
12	570	6.4	210	5.2	100	4.0		2.30
13	590	6.5	210	5.2	100	4.0		2.30
14	580	6.6	210	5.2	100	4.0		2.30
15	510	6.7	220	5.1	100	3.9		2.40
16	490	6.8	220	5.0	100	3.8		2.50
17	480	6.8	230	5.0	105	3.5		2.50
18	400	6.8	240	4.7	110	3.1		2.50
19	330	7.0	260	---	115	2.8		2.70
20	---	7.0	290		120	2.0	2.8	2.70
21		6.9	280		---	1.7		2.6
22		6.8	280					2.75
23		5.8	300					3.0

Time: 90.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 34

Budapest, Hungary (47.4°N, 19.2°E)

June 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	315	7.3						2.86
01	315	7.4					2.8	2.86
02	310	6.8						2.90
03	310	6.8						2.92
04	305	7.0			120	2.0		2.92
05	280	7.5	280	4.0	125	2.3		3.06
06	325	8.1	255	5.0	115	2.9	3.7	2.81
07	330	8.4	240	5.2	110	3.2	5.8	2.79
08	395	8.5	240	5.8	110	3.6	5.1	2.52
09	400	8.4	250	5.9	110	3.7	5.6	2.49
10	400	8.8	240	6.0	110	3.8	5.8	2.50
11	435	8.6	250	6.0	110	---	4.9	2.36
12	420	8.6	240	6.0	110	4.1	5.4	2.42
13	420	8.4	240	6.0	---	---	4.4	2.42
14	410	8.4	240	5.9	110	---	4.8	2.45
15	405	8.2	240	5.9	110	3.8		2.47
16	400	8.1	240	5.7	115	3.6		2.49
17	355	8.2	255	5.4	110	3.3	5.2	2.67
18	325	8.2	260	4.6	120	2.9	4.8	2.81
19	300	8.4	280	3.5	120	2.3	5.3	2.95
20	300	8.1					4.9	2.95
21	300	8.0					4.5	2.95
22	310	7.6					3.0	2.90
23	320	7.5					3.2	2.86

Time: Local time.

Sweep: 1.0 Mc to 20.0 Mc in 35 seconds.

Table 35

Graz, Austria (47.1°N, 15.5°E)

June 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		7.9	315					
01		7.1	300					
02		7.1	335					
03		6.8	320					
04		6.9	300					
05		7.2	260					
06	(345)	7.8	250	4.9			4.0	
07	335	8.4	240	(5.0)	---	3.5	5.0	
08	365	8.6	235	(5.3)	---	3.7	4.8	
09	350	8.7	(220)	(5.3)	---	3.8	4.9	
10	350	>9.1		(6.5)	---		4.8	
11	350	>7.6		(6.2)	---		4.8	
12	400	(8.7)		(6.4)	---		4.6	
13	375	(8.4)		---	---		4.6	
14	375	>7.6		---	---		4.8	
15	380	8.1	(230)	>5.0	---	(3.8)	4.2	
16	360	8.4	240	5.0	---	3.7	4.5	
17	355	7.8	240	4.9	---	3.5	4.4	
18	(340)	7.9	270	(4.4)			4.6	
19		7.9	270				4.2	
20		>7.9	260				4.4	
21		7.5	300				5.0	
22		8.0	300				3.6	
23		7.9	330					

Time: 15.0°E.

Sweep: 2.5 Mc to 11.5 Mc in 2 minutes.

Table 36

Schwarzenburg, Switzerland (46.8°N, 7.3°E)

June 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	8.0					3.1	2.85
01	300	7.5					2.8	
02	300	7.2					2.7	2.9
03	300	7.0						2.8
04	300	6.7						2.9
05	260	6.8	---	---	100	2.0	2.4	3.0
06	240	7.7	230	4.5	100	2.6	3.8	3.15
07	290	8.2	210	5.2	100	3.0	4.6	3.05
08	340	8.3	210	5.5	100	3.4	5.4	3.1
09	310	8.8	220	6.0	100	3.6	5.6	3.1
10	340	9.0	220	6.2	100	3.8	5.3	3.0
11	360	8.6	220	6.2	100	4.0	6.0	3.0
12	380	8.8	200	6.2	100	4.0	4.8	2.9
13	400	8.5	200	6.0	100	4.0	4.7	2.9
14	390	8.5	200	6.1	100	3.9	4.7	2.9
15	380	8.5	210	5.9	---	---	4.4	2.9
16	370	8.5	210	5.8	100	3.6	4.8	2.9
17	340	8.4	230	5.4	100	3.4	5.0	3.0
18	320	8.3	230	5.0	100	3.1	4.8	3.1
19	270	8.1	---	---	100	2.5	4.0	3.2
20	260	8.1					4.4	3.2
21		7.3					3.5	(3.1)
22	(300)	(8.0)					5.2	(2.9)
23	300	8.0					3.3	(2.9)

Time: 15.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 37

Ottawa, Canada (45.4°N, 75.9°W) June 1957									
Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2	
00		5.2	300				<2.0	2.5	
01		5.0	310				<1.6	2.5	
02		4.9	310				2.0	2.5	
03		4.6	300				<1.6	2.5	
04		4.5	310					2.7	
05	---	5.1	270		110	2.2		2.7	
06	370	5.6	250	4.4	110	2.9		2.75	
07	440	6.1	240	4.8	105	3.3		2.6	
08	490	6.3	230	5.0	105	3.7		2.45	
09	500	6.4	220	5.1	105	3.9		2.5	
10	550	6.3	210	5.3	105	4.0		2.35	
11	570	6.3	210	5.5	105	4.0		2.4	
12	520	6.8	210	5.5	105	4.1		2.4	
13	520	6.8	220	5.5	105	4.1		2.4	
14	500	6.8	220	5.6	105	4.0		2.4	
15	480	7.0	220	5.4	105	4.0		2.4	
16	470	7.0	230	5.2	105	3.8		2.5	
17	430	7.0	230	5.0	105	3.3		2.5	
18	380	7.2	260	4.7	110	3.0		2.6	
19	(340)	7.2	270		120	2.3	3.2	2.6	
20		7.3	280		---	1.7	2.2	2.6	
21		7.6	280		---	<1.6		2.6	
22		7.0	280		---	---	3.0	2.6	
23		6.6	300		---	---	2.4	2.5	

Time: 75.0°W.

Sweep: 1.0 Mc to 20.0 Mc in 15 seconds.

Table 38

Grand Bahama I. (26.6°N, 78.2°W) June 1957									
Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2	
00		8.4	300					2.5	2.60
01		8.0	285					(2.8)	2.65
02		7.7	280					(2.3)	2.70
03		7.2	290					(2.4)	2.65
04		6.9	290					(2.5)	2.65
05		7.0	295						2.4
06		7.2	260						2.80
07	(415)	8.0	240	4.7	109	3.00		3.5	2.70
08	435	8.2	235	5.2	107	3.60		4.0	2.60
09	410	9.1	220	5.4	109	3.85		4.4	2.55
10	435	9.2	220	6.0	105	4.05		4.5	2.50
11	415	9.4	220	5.8	109	4.25		4.5	2.50
12	400	9.9	220	5.9	109	4.35		4.5	2.50
13	400	10.0	225	6.0	109	4.35		4.5	2.55
14	410	9.7	220	6.0	109	4.20		4.4	2.55
15	400	9.8	225	5.7	109	4.00		4.3	2.55
16	400	9.4	230	5.5	109	3.75		4.2	2.55
17	380	9.3	240	5.0	109	3.30		3.8	2.60
18	<350	9.0	260	---	113	2.80		3.3	2.65
19		8.6	275		---	---		(2.8)	2.65
20		8.5	280					(2.4)	2.60
21		8.4	280						2.4
22		8.1	<300					(2.8)	2.55
23		8.3	305					3.2	2.55

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 39

Baquio, P. I. (16.4°N, 120.6°E) June 1957									
Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2	
00		10.8	330				2.4	2.60	
01		9.7	295					2.60	
02		9.1	280					2.60	
03		9.0	275					2.65	
04		7.9	280					2.70	
05		6.9	270				1.6	2.75	
06		8.4	280		131	(2.30)	(2.8)	2.85	
07		9.4	285		123	(3.00)	(4.7)	2.70	
08		10.2	260		120	(3.50)	(6.5)	2.40	
09		10.8	255		119	(3.90)	(6.9)	2.15	
10	---	11.2	250		<121	(4.05)	(6.7)	2.05	
11	---	11.5	245	---	<121	4.15		2.00	
12	---	12.1	250	---	122	(4.20)		2.00	
13	(520)	11.9	250	---	119	4.20		2.00	
14	(550)	12.2	250	---	123	4.05		2.00	
15	---	12.2	250	---	119	3.90	4.0	2.05	
16	---	11.7	260		119	3.55	3.6	2.10	
17		11.6	280		124	(3.00)	(3.6)	2.15	
18		11.6	310		139	(2.20)	(3.0)	2.15	
19		11.2	380				(2.6)	2.10	
20		10.8	430				2.2	2.10	
21		10.5	420				2.6	2.20	
22		10.6	405				2.2	2.20	
23		11.0	370				2.7	2.40	

Time: 120.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 40

Talara, Peru (4.6°S, 81.3°W) June 1957									
Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2	
00		10.2	<240						2.90
01		9.3	<235						2.95
02		8.9	250						2.90
03		8.7	245						3.00
04		7.8	235						3.00
05		6.8	240						3.00
06		5.5	250						2.80
07		7.3	270						2.80
08		8.8	250		131	2.20			2.75
09		9.8	235		115	3.55		3.2	2.45
10		10.3	230		112	3.85			2.25
11		>10.4	225		113	4.00			2.15
12	---	10.9	220		113	4.10			2.10
13	---	11.0	220		113	4.10		4.1	2.05
14	---	11.1	220	---	111	4.00			2.10
15	---	11.0	220		111	3.75			2.05
16		11.0	230		111	3.40	3.6		2.05
17		10.9	250		117	2.95	3.2		2.10
18		(10.5)	295		142	1.90	>3.8		(2.10)
19		10.3	355				>2.9		2.10
20		10.1	360				>3.0		2.15
21		(10.4)	350				2.3		(2.30)
22		>10.6	285				2.5		2.60
23		(10.5)	250				(2.2)		2.70

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 41

Brisbane, Australia (27.5°S, 152.9°E) June 1957									
Time	h'F2	foF2	h'F	foF1	h'E	fQe	fEs	(M3000)F2	
00		4.8	260					2.70	
01		4.9	260					2.70	
02		4.8	260					2.70	
03		5.0	260				2.0	2.70	
04		4.4	245			---	2.1	2.65	
05		4.2	250			E		2.70	
06		4.6	250			E		2.80	
07		8.1	230			2.20		3.05	
08		11.0	230			2.90		3.05	
09		12.2	230			3.35		3.05	
10		12.2	230			3.60	3.8	3.05	
11		11.9	230			3.80	4.1	2.85	
12		11.3	230			3.80	4.4	2.80	
13		11.1	230			3.70	4.2	2.80	
14		11.4	230			3.50	4.3	2.80	
15		11.0	230			3.20	3.8	2.80	
16		10.8	240			2.60	3.4	2.80	
17		10.6	240			1.80	3.2	2.80	
18		9.0	230			E	3.2	2.80	
19		7.9	240			---	3.2	2.75	
20		7.0	245				3.0	2.70	
21		6.3	250					2.75	
22		6.0	250					2.70	
23		5.1	250					2.70	

Time: 150.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 42

Watheroo, W. Australia (30.3°S, 115.9°E) June 1957									
Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2	
00		4.3	250						3.05
01		4.1	250						3.00
02		4.0	250						2.95
03		>4.1	250						(2.90)
04		4.2	260						3.00
05		(4.0)	240						(3.05)
06		(3.8)	240						(3.10)
07		5.4	250						3.20
08		8.7	220						3.40
09		10.8	230						3.30
10	---	11.8	220	---					3.25
11	---	11.9	220	---					3.20
12	---	12.0	220	---					3.10
13	---	11.8	220	---					2.95
14	---	11.9	220	---					3.00
15		11.8	230						2.95
16		>11.6	230						3.10
17		10.6	220						3.10
18		10.1	210						(3.00)
19		7.7	220						3.15
20		6.7	220						3.20
21		5.8	220						3.10
22		5.0	250						3.00
23		4.6	250						2.95

Time: 120.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 1 minute 45 seconds.

Table 43

Canberra, Australia (35.3°S, 149.0°E)

June 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		4.8	<285					2.65
01		4.8	<280					2.60
02		4.8	<280					2.65
03		4.8	<275					2.70
04		4.8	260					2.85
05		4.5	<245					2.90
06		4.1	<250					2.80
07		>5.8	250			<1.70	2.1	----
08		>9.4	240			2.45		3.30
09		>11.4	240			3.00	3.1	3.20
10		>12.0	230			3.35	3.4	(3.10)
11		12.8	230			<3.50	3.7	(3.10)
12		>12.1	225			3.60	3.8	(2.95)
13		>12.5	240			3.55	3.8	(2.90)
14		>11.8	240			3.40	3.6	(2.90)
15		>11.5	240			3.10	3.4	(2.85)
16		>11.1	240			2.60	2.6	(3.00)
17		>10.9	240			1.75	2.5	2.90
18		>9.4	230			----	2.2	2.95
19		8.7	<235				2.1	3.00
20		7.0	<240				2.3	3.00
21		6.1	240					(2.95)
22		5.7	<250					2.80
23		5.2	<250					(2.70)

Time: 150.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 44

Hobart, Tasmania (42.9°S, 147.2°E)

June 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		4.2	300					2.60
01		4.2	300					2.60
02		4.3	300					2.60
03		4.3	300					2.60
04		4.3	290					2.65
05		4.2	280					2.75
06		3.7	260					2.75
07		3.8	270					2.80
08		7.5	250				2.20	3.05
09		10.2	240				2.75	3.20
10		11.3	240				3.10	3.15
11		11.9	240				3.30	3.05
12		12.2	240				3.35	3.10
13		>12.6	240				3.40	3.00
14		12.5	240				3.15	2.95
15		>12.0	240				2.80	3.00
16		12.0	240				2.30	2.95
17		11.0	240					2.95
18		>9.6	240					2.95
19		8.2	240					2.90
20		6.4	250					2.85
21		5.6	250					2.80
22		4.8	270					2.70
23		4.4	280					2.60

Time: 150.0°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 45

Lindau/Harz, Germany (51.6°N, 10.1°E)

May 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		7.45	300				2.5	2.50
01		7.10	<310				2.6	2.45
02		6.70	305				2.2	2.45
03		6.40	300				2.7	2.45
04		6.35	300				3.1	2.50
05		6.95	270		110	1.90	3.6	2.65
06		7.45	250		108	2.60	4.0	2.70
07		7.95	240		102	3.05	4.2	2.70
08	390	8.20	235	5.30	104	3.35	5.0	2.65
09	395	8.25	225	5.55	104	3.60	5.0	2.60
10	400	8.55	220	5.80	102	3.75	6.0	2.60
11	440	8.80	220	5.80	100	3.85	5.2	2.50
12	420	8.85	220	5.95	100	3.90	5.0	2.55
13	400	9.10	230	5.85	102	3.90	5.0	2.55
14	400	9.05	230	6.00	103	3.90	4.8	2.55
15	395	9.05	230	5.65	103	3.75	4.4	2.65
16	(430)	8.80	230	5.60	104	3.50	4.6	2.65
17	---	8.75	235	----	104	3.25	4.4	2.70
18	---	8.65	250	----	105	2.85	4.0	2.70
19		8.95	260		114	2.30	4.0	2.75
20		8.90	265		----	3.4		2.75
21		8.25	260		---	E	2.8	2.60
22		8.00	280				2.6	2.55
23		7.60	285				2.6	2.50

Time: 15.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 4 minutes.

Table 46

Hobart, Tasmania (42.9°S, 147.2°E)

May 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		5.6	280					2.70
01		5.3	280					2.70
02		5.1	290					2.70
03		5.0	290					2.70
04		4.8	280					2.75
05		4.5	270					2.85
06		4.0	260					2.80
07		5.2	270					3.00
08		9.0	240				2.30	3.30
09		>11.0	240				2.90	3.30
10		>12.0	230				3.20	3.15
11		>12.5	230				3.40	3.10
12		0	230				3.50	(3.15)
13		0	230				3.45	(3.05)
14		0	240				3.30	(3.00)
15		>12.0	240				3.10	----
16		>12.0	240				2.55	(3.10)
17		>11.5	230				----	3.05
18		10.3	240					3.00
19		8.8	240					3.00
20		7.4	250					2.95
21		6.4	260					2.80
22		6.1	270					2.70
23		5.8	280					2.70

Time: 150.0°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 47

Christchurch, New Zealand (43.6°S, 172.8°E)

May 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.0	300				<1.6	2.5
01		6.0	300				3.0	2.6
02		5.9	270				<1.5	2.6
03		5.8	260				<1.5	2.7
04		5.4	260				1.3	2.7
05		5.0	250				1.9	2.7
06		4.4	250				<1.5	2.7
07		6.4	250			(1.7)		2.95
08		9.1	240		110	2.4		3.1
09		11.4	240		100	2.9	2.9	3.1
10		12.0	230		100	3.2		3.0
11		12.4	240		100	3.4		3.0
12		12.2	230		---	3.4		3.0
13		12.8	240		---	3.4		2.9
14		12.8	240		---	3.2		2.9
15		12.8	240		---	2.9	3.2	2.95
16		11.9	240		---	(2.4)	2.5	3.0
17		11.0	230		---	---	2.4	2.9
18		9.4	240				<1.6	2.8
19		8.6	250				<1.8	2.8
20		7.5	250				1.8	2.8
21		6.8	250				<1.7	2.7
22		6.2	270				<1.6	2.7
23		6.0	260				<1.7	2.45

Time: 172.5°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 48

Christchurch, New Zealand (43.6°S, 172.8°E)

April 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.0	280				<1.7	2.5
01		6.8	280				<1.4	2.4
02		6.4	290				1.4	2.4
03		6.0	300				<1.4	2.5
04		5.8	260				<1.8	2.5
05		5.5	250				<1.6	2.6
06		5.6	270					2.65
07		8.0	<250		110	2.1		2.9
08		10.4	240		110	2.7		3.0
09	---	11.9	230	---	105	3.1		3.0
10	---	12.5	230	---	100	3.4		2.9
11	---	12.9	230	---	100	3.6		2.9
12	---	13.1	230	---	100	3.7		2.8
13	---	13.0	230	---	100	3.6		2.75
14	---	12.6	240	---	100	3.5		2.7
15		12.6	240		100	3.1		2.8
16		12.1	240		110	2.8		2.8
17		12.0	240		120	2.2		2.8
18		10.9	240		---	<1.4	<1.5	2.8
19		9.2	240		---	---	2.7	2.6
20		8.6	250				<1.6	2.7
21		8.0	270				<1.5	2.6
22		7.7	260				<1.7	2.6
23		7.2	280				<2.4	2.5

Time: 172.5°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 49

Godhavn, Greenland (69.2°N, 53.5°W)								December 1956	
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00		(5.2)	260					----	
01		5.4	260					2.65	
02		4.6	275					(2.60)	
03		5.0	270						
04		(4.3)	265				2.1	----	
05		----	275					----	
06		(4.6)	270					----	
07		(4.4)	<280					----	
08		(5.0)	270					----	
09		----	280					----	
10		(6.4)	260				2.5	----	
11		(7.3)	250				2.6	----	
12		(7.5)	230				2.4	(2.60)	
13		----	240				3.2	----	
14		(6.4)	240				2.3	(2.80)	
15		(6.1)	240					----	
16		5.6	235					(2.70)	
17		5.8	240					(2.60)	
18		5.3	250					----	
19		(5.8)	235				2.5	----	
20		5.8	250				2.6	(2.70)	
21		5.9	<250					(2.55)	
22		(5.6)	260					(2.50)	
23		(5.6)	250					(2.75)	

Time: 45.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 16.2 seconds.

Table 50*

Ibadan, Nigeria (7.4°N, 4.0°E)								November 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	280	10.5					5.8	(2.5)	
01	275	(10.6)					5.8	(2.6)	
02	265	10.4					5.6	(2.8)	
03	245	10.1					5.1	(2.9)	
04	235	8.6					4.2	(2.6)	
05	225	----					4.8	----	
06	265	8.6			(140)	2.2	7.8	----	
07		11.4	245		(120)	3.1	>8.9	(2.7)	
08		12.9	235			3.6	12.8	2.4	
09		13.2	225			3.7	14.3	2.3	
10		13.1	225			4.1	14.4	2.0	
11		12.8	215			4.2	14.8	2.0	
12		13.1	215			4.2	14.6	2.0	
13		13.0	220			4.1	14.0	2.0	
14		13.0	220			3.9	13.9	1.9	
15		13.1	235			3.6	13.6	1.9	
16		(12.2)	250			3.1	>11.2	(1.9)	
17	285	----			(140)	2.2	>8.3	----	
18	380	10.8				1.2	3.9	(1.8)	
19	435	(8.6)						(1.8)	
20	415	(8.5)						(2.0)	
21	365	(9.4)					2.5	----	
22	305	8.9					1.8	(2.4)	
23	275	10.6					4.7	(2.5)	

Time: 0.0°.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.

*Average values except foF2 and fEs, which are median values.

Table 51

Budapest, Hungary (47.4°N, 19.2°E)								September 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	310	5.7							
01	310	5.4							
02	310	5.2							
03	305	4.7							
04	285	4.9			130	2.0			
05	250	6.5	----	----	135	2.2			
06	250	7.9	250	4.0	120	2.8	3.1		
07	260	8.6	240	4.6	115	3.2	3.6		
08	260	9.9	230	5.0	115	3.4	4.5		
09	250	10.3	225	5.1	115	3.5	4.8		
10	250	10.4	220	5.2	115	3.4	4.6		
11	270	10.4	220	5.7	115	3.5	4.8		
12	285	10.4	230	5.4	115	3.6	4.0		
13	255	10.3	235	5.4	110	3.4			
14	250	10.3	240	5.5	115	3.2			
15	255	10.3	250	4.9	120	2.9	3.1		
16	260	9.3	----	----	120	2.4	3.2		
17	260	9.2			----	----			
18	260	8.6							
19	260	7.2							
20	270	6.8							
21	300	6.0							
22	320	6.0							
23	320	5.8							

Time: 0.0°.

Sweep: 1.0 Mc to 20.0 Mc in 35 seconds.

Table 52

Delhi, India (28.6°N, 77.1°E)								September 1956	
Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	320	8.2						3.00	
01	320	7.5						3.00	
02	320	7.2						3.00	
03									
04	360	6.2						2.80	
05	340	6.5						2.90	
06	280	8.3						3.25	
07	280	10.0						3.25	
08	280	11.6						3.25	
09	320	12.0						3.00	
10	350	13.4						2.85	
11	350	13.8						2.85	
12	360	14.8						2.80	
13	360	15.1						2.80	
14	360	>15.2						2.80	
15	340	>15.0						2.85	
16	320	>15.0						3.00	
17	320	14.6						3.00	
18	320	14.3						3.00	
19	320	13.5						3.00	
20	320	>11.5						3.00	
21	360	9.4						2.80	
22	340	8.9						2.90	
23	340	8.6						2.90	

Time: 75.0°E.

Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.

*Height at 0.83 foF2.

Table 53

Ahmedabad, India (23.0°N, 72.6°E)								September 1956	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	275	11.8					3.0	2.85	
01	260	11.0					2.9	2.85	
02	240	9.7					3.0	2.90	
03	240	7.1					3.0	2.80	
04	285	6.0					3.0	2.70	
05	280	5.7					1.7	2.75	
06	270	7.5					3.0	3.05	
07	245	10.4	250	4.4	110	2.6		3.25	
08	250	11.0	230	4.8	110	3.1		3.00	
09	260	12.3	220	5.2	107	3.5		2.80	
10	350	13.3	225	5.5	105	3.8		2.65	
11	365	14.4	220	5.7	105	4.0		2.65	
12	390	>15.0	230	5.9	105	4.1		(2.65)	
13	400	>15.2	250	5.8	105	4.1		(2.65)	
14	390	(15.3)	235	6.0	105	4.0		(2.60)	
15	360	(15.4)	240	6.0	110	3.8		<2.75	
16	335	>14.2	250	5.4	110	3.5		<2.85	
17	290	>14.0	250	5.0	115	2.7	3.6	<2.80	
18	265	>15.0	----	----	----	1.8	3.8	2.80	
19	275	>14.1					3.2	<2.65	
20	280	>14.4					3.1	(2.65)	
21	250	>14.0					3.0	2.70	
22	280	>13.0					3.1	2.75	
23	275	13.0					3.0	2.80	

Time: 75.0°E.

Sweep: 0.6 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 54

Calcutta, India (22.9°N, 88.5°E)								September 1956*	
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2	
00	310	8.6					2.0	3.1	
01	310	8.0						3.1	
02	290	7.5					2.0	3.2	
03	290	6.8						3.2	
04	310	6.5						3.2	
05	310	5.5						3.2	
06	300	7.0			120	2.2	2.6	3.15	
07	----	8.6	230	----	----	----	----	3.4	
08	320	9.8	220	4.9	----	----	----	3.8	
09	340	10.7	210	5.2	----	----	----	4.4	3.05
10	360	11.5	200	5.4	----	----	----	4.5	2.9
11	370	11.8	210	5.5	100	3.6	4.4	2.9	
12	380	12.2	210	5.5	100	3.8		2.8	
13	370	12.5	200	5.5	100	3.7		2.8	
14	360	12.5	220	5.4	100	3.5		2.85	
15	340	12.5	210	5.3	100	3.2	3.7	2.9	
16	310	12.1	210	5.2	----	----	----	3.7	3.1
17	300	12.0	220	4.9	----	----	----	3.6	3.1
18	280	11.2			110	2.4	3.1	3.25	
19	280	11.1						3.3	
20	290	10.5						3.2	
21	300	10.2						3.1	
22	310	9.8						3.1	
23	310	9.0						3.1	

Time: 90.0°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

*Data observed from September 10, 1956 to September 30, 1956, inclusive.

Table 55

Bombay, India (19.0°N, 73.0°E)		September 1956						
Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	270	6.4						3.35
07	300	7.3						3.10
08	330	9.7						2.95
09	360	9.9						2.80
10	360	11.1						2.80
11	390	11.5						2.65
12	390	11.8						2.65
13	420	12.1						2.55
14	420	11.9						2.55
15	400	11.5						2.60
16	360	11.3						2.80
17	390	11.0						2.65
18	360	10.4						2.80
19	360	9.4						2.80
20	330	9.2						2.95
21	300	8.6						3.10
22	280	8.2						3.20

Time: 75.0°E.

Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.

*Height at 0.83 foF2.

Table 57

Tiruchy, India (10.8°N, 78.8°E)		September 1956						
Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	320	9.2						3.00
07	360	10.4						2.80
08	400	11.5						2.60
09	480	11.8						2.30
10	480	12.0						2.30
11	520	12.0						2.20
12	520	12.0						2.20
13	520	12.0						2.20
14	520	11.8						2.20
15	520	11.8						2.20
16	520	11.6						2.20
17	520	11.0						2.20
18	480	10.5						2.30
19	480	9.8						2.30
20	480	9.6						2.30
21	440	9.4						2.50
21:30	---	---						---
23								

Time: 75.0°E.

Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.

*Height at 0.83 foF2.

Table 59*

Singapore, British Malaya (1.3°N, 103.8°E)		September 1956						
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	230	>10.5					1.4	2.6
01	250	10.2						2.6
02	250	9.9					1.4	2.8
03	240	8.7					1.1	3.0
04	235	7.7					1.9	3.1
05	235	6.0					2.0	3.2
06	280	6.6					2.3	2.9
07	255	10.6			120	2.8	3.1	3.0
08	(245)	12.7			115	3.4	3.6	2.7
09		13.5	(225)		110	3.8	4.4	2.3
10		13.9			115	4.1	4.8	2.1
11		>12.9			(110)	4.2		1.9
12		>12.5	(205)		(115)	4.2		1.9
13		>12.2	(205)		(110)	4.2		1.9
14		12.7	(210)		(110)	4.0		1.9
15		12.9	(210)		105	3.8	4.0	2.0
16	245	13.1	(230)		110	3.4	3.6	2.1
17	260	13.4			115	2.8	3.4	2.1
18	295	13.4				2.0	3.4	2.1
19	370	13.4					2.8	2.1
20	345	>12.6					2.0	---
21	265	>12.9					2.3	---
22	235	13.9					2.8	(2.8)
23	220	>11.6					2.4	2.8

Time: 105.0°E.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.

*Average values except foF2 and fEs, which are median values.

Table 56

Madras, India (13.0°N, 80.2°E)		September 1956						
Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		360	14.3					2.80
01		360	>13.7					2.80
02		340	10.2					2.90
03	(360)	>9.2						(2.80)
04	350	7.3						2.90
05	360	>6.7						2.80
06	320	>8.8						3.00
07	380	11.5						2.70
08	440	13.0						2.50
09	480	13.2						2.30
10	500	13.2						2.25
11	520	12.3						2.20
12	520	12.4						2.20
13	520	12.8						2.20
14	520	13.0						2.20
15	480	13.2						2.30
16	480	13.6						2.30
17	500	13.6						2.25
18	540	13.2						2.15
19	530	13.0						2.20
20	500	13.2						2.25
21	480	13.2						2.30
22	(460)	>14.1						(2.40)
23	400	>14.5						2.60

Time: 75.0°E.

Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.

*Height at 0.83 foF2.

Table 58

Kodaikanal, India (10.2°N, 77.5°E)		September 1956						
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	11.7						3.00
01	235	10.4						3.10
02	240	9.8						3.10
03	235	9.1						3.05
04	235	7.5						3.20
05	220	6.6						3.35
06	260	7.5						3.10
07	(260)	10.8	240	---	115	2.8		2.90
08	---	12.5	230	---	110	3.3	7.4	2.65
09	---	12.5	220	---	110	3.6	8.8	2.35
10	---	11.8	210	---	105	4.0	10.2	2.30
11	---	11.6	210	---	110	---	10.6	2.25
12	---	11.6	210	---	110	---	10.4	2.20
13	---	12.0	210	---	110	---	10.5	2.20
14	---	12.1	220	---	110	3.8	10.5	2.20
15	---	12.3	220	---	110	3.8	9.7	2.25
16	---	12.5	235	---	110	3.4	8.2	2.20
17	260	12.6			---	---	6.5	2.30
18	310	11.8						2.20
19	430	10.8						2.20
20	405	(10.7)						2.20
21	320	11.0						2.45
22	295	12.0						2.60
23	275	(11.9)						(2.90)

Time: 75.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 60*

Inverness, Scotland (57.4°N, 4.2°W)		August 1956						
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	6.3					2.4	2.5
01	325	5.8					2.6	2.4
02	320	5.3					2.7	2.4
03	315	5.1					2.7	2.5
04	300	4.8			(145)	(1.4)	2.7	2.6
05	290	5.3			130	1.8	2.8	2.7
06	295	5.8	(250)	(3.9)	115	2.3	3.4	2.8
07	310	6.3	245	4.3	110	2.7	2.9	2.8
08	350	7.0	240	4.6	105	3.1	4.3	2.8
09	370	6.9	230	5.0	105	3.3		2.8
10	335	7.6	225	5.1	105	3.5	4.8	2.8
11	355	7.5	220	5.2	105	3.6		2.8
12	385	7.3	220	5.5	100	3.7		2.7
13	385	7.5	220	5.5	100	3.7		2.7
14	385	7.3	230	5.4	100	3.6		2.6
15	370	7.4	235	5.3	105	3.5		2.7
16	340	7.4	235	5.1	105	3.3		2.7
17	305	7.6	245	(4.8)	110	3.0		2.8
18	280	7.8	245	(4.4)	115	2.6	3.1	2.8
19	265	7.9	---	---	130	2.2	3.4	2.8
20	260	7.6			(140)	(1.8)		2.8
21	265	7.3					2.8	2.7
22	280	7.0						2.5
23	300	6.7						2.5

Time: 0.0°.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.

*Average values except foF2 and fEs, which are median values.

Table 61

Budapest, Hungary (47.4°N, 19.2°E)

August 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	5.8					2.3	
01	320	5.6						
02	320	5.4						
03	310	5.4						
04	270	5.8	265	3.2	135	2.0		
05	260	6.8	250	3.7	120	2.6	3.6	
06	260	7.3	235	4.5	115	3.1	3.9	
07	310	8.1	240	5.1	110	3.4	4.9	
08	315	8.3	230	5.4	115	3.5	5.0	
09	340	8.3	220	5.5	110	3.6	5.6	
10	355	8.4	210	5.8	110	3.6	5.1	
11	345	8.8	210	5.7	110	3.6	4.7	
12	340	8.6	230	5.6	115	3.6	4.5	
13	340	8.5	230	5.6	115	3.6	3.7	
14	315	8.2	230	5.3	115	3.4	3.8	
15	310	8.2	240	5.0	115	3.3	3.8	
16	285	8.5	240	4.5	120	2.9	3.9	
17	270	8.4			125	2.2	3.8	
18	265	8.6					3.7	
19	270	8.2					3.8	
20	280	7.0					3.2	
21	300	6.4					2.8	
22	315	6.4					3.1	
23	320	6.0						

Time: 0.0°.

Sweep: 1.0 Mc to 20.0 Mc in 35 seconds.

Table 62

Delhi, India (28.6°N, 77.1°E)

August 1956

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	340	8.1						2.90
01	350	7.8						2.85
02	340	7.5						2.90
03								
04	320	6.8						3.00
05	320	7.0						3.00
06	280	8.2						3.25
07	280	9.5						3.25
08	280	9.5						3.00
09	320	10.0						3.00
10	360	11.0						2.80
11	360	12.0						2.80
12	370	13.2						2.75
13	360	13.6						2.80
14	360	14.1						2.80
15	360	14.2						2.80
16	360	13.5						2.80
17	320	13.3						3.00
18	320	12.8						3.00
19	320	11.6						3.00
20	320	10.3						3.00
21	360	9.1						2.80
22	360	8.6						2.80
23	360	8.5						2.80

Time: 75.0°E.

Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.

*Height at 0.83 foF2.

Table 63

Ahmedabad, India (23.0°N, 72.6°E)

August 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	8.6					3.2	2.80
01	275	8.1					3.2	2.80
02	270	7.7					3.2	2.80
03	270	7.0					3.2	2.85
04	280	6.6					3.0	2.65
05	270	6.4					3.2	2.85
06	255	7.4			128	1.8	3.2	3.05
07	250	8.9	240	4.3	110	2.7	3.4	3.15
08	260	9.3	225	4.8	107	3.2	4.0	3.05
09	270	10.3	210	5.3	105	3.6		2.80
10	320	11.0	210	5.4	105	3.8		2.60
11	370	12.4	220	5.8	105	4.0		2.60
12	375	13.0	230	5.9	105	4.1		2.60
13	390	13.5	230	5.9	105	4.0		<2.65
14	380	14.4	230	5.8	105	4.0		2.65
15	355	14.6	230	5.7	105	3.8		2.65
16	330	>14.0	235	5.5	110	3.5		<2.75
17	310	>14.0	250	5.0	112	3.0		2.80
18	280	13.7	255	4.1	118	2.2	3.4	<2.85
19	270	13.0					3.2	2.85
20	275	12.2					3.2	2.65
21	280	11.6					3.1	2.65
22	300	10.8					3.1	2.60
23	300	9.0					3.2	2.65

Time: 75.0°E.

Sweep: 0.6 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 64

Bombay, India (19.0°N, 73.0°E)

August 1956

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	250	6.2						3.45
07	270	7.4						3.35
08:30	300	8.7						3.10
09	330	9.4						2.95
10	360	9.8						2.80
11	360	10.7						2.80
12	390	11.5						2.65
13	420	11.6						2.55
14	420	11.6						2.55
15	390	11.4						2.65
16	390	11.2						2.65
17	390	11.0						2.65
18	360	10.4						2.80
19	360	9.4						2.80
20	330	8.8						2.95
21	300	8.2						3.10
22	270	6.6						3.35
23								

Time: 75.0°E.

Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.

*Height at 0.83 foF2.

Table 65

Madras, India (13.0°N, 80.2°E)

August 1956

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	390	11.4						2.65
01	380	11.4						2.70
02	340	9.2						2.90
03	330	7.9						2.95
04	320	6.1						3.00
05	300	5.7						3.05
06	320	8.3						3.00
07	360	9.8						2.80
08	420	11.2						2.55
09	480	11.5						2.30
10	490	11.2						2.30
11	520	11.2						2.20
12	510	11.4						2.20
13	500	11.4						2.25
14	500	11.8						2.25
15	500	12.1						2.30
16	480	12.0						2.30
17	480	12.4						2.30
18	480	12.3						2.30
19	500	11.7						2.30
20	480	11.1						2.30
21	480	10.6						2.30
22	420	11.2						2.55
23	440	11.8						2.50

Time: 75.0°E.

Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.

*Height at 0.83 foF2.

Table 66

Tiruchy, India (10.8°N, 78.8°E)

August 1956

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	360	7.8						2.80
07	400	10.2						2.60
08	440	10.7						2.50
09	480	11.5						2.30
10	520	11.5						2.20
11	520	11.2						2.20
12	520	11.2						2.20
13	520	11.0						2.20
14	(520)	(11.3)						(2.20)
15	520	10.9						2.20
16	520	10.5						2.20
17	520	10.2						2.20
18	480	10.0						2.30
19	480	9.7						2.30
20	(440)	(9.2)						(2.50)
21	440	8.9						2.50
21:30	---	---						----
23								

Time: 75.0°E.

Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.

*Height at 0.83 foF2.

Table 67

Kodaikanal, India (10.2°N, 77.5°E)

August 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	11.0						2.90
01	250	9.8						3.00
02	250	9.2						3.10
03	255	8.4						3.10
04	240	7.6						3.20
05	235	6.0						3.25
06	275	7.1						3.10
07	245	10.0	240	---	120	3.3		2.90
08	---	11.5	230	---	115	3.4	4.0	2.70
09	(305)	11.8	225	---	110	3.6	7.9	2.40
10	---	11.2	215	---	110	---	9.0	2.30
11	---	10.7	210	---	110	---	10.0	2.30
12	---	10.8	210	---	110	---	10.3	2.20
13	(400)	10.9	210	---	110	4.1	10.2	2.25
14	---	11.1	215	---	110	---	10.0	2.20
15	---	11.5	215	---	110	3.6	8.8	2.20
16	---	11.6	230	---	110	3.3	8.5	2.20
17	255	11.8	245	---	115	3.0	4.2	2.30
18	295	11.4						2.30
19	390	10.3						2.30
20	415	9.8						2.30
21	360	10.4						2.40
22	330	10.8						2.50
23	305	11.0						2.70

Time: 75.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 68

Sao Paulo, Brazil (23.5°S, 46.5°W)

August 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		11.4						
01		10.4						
02		10.5						
03		8.3						
04		5.6						
05		4.8						
06		4.3						
07		8.0						
08		10.2						
09		11.1						
10		11.8						
11		12.8						
12		13.0						
13		13.4						
14		12.8						
15		13.4						
16		13.8						
17		14.0						
18		>14.0						
19		13.6						
20		13.3						
21		12.6						
22		11.9						
23		11.8						

Time: 45.0°W

Sweep: 1.75 Mc to 20.0 Mc in 7 minutes 18 seconds.

Table 69*

Port Lockroy (64.8°S, 63.5°W)

August 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	355	3.1						(2.4)
01	345	3.0						
02	355	2.9					1.0	(2.3)
03	350	2.7						(2.4)
04	335	2.7						(2.4)
05	310	2.6						(2.4)
06	270	2.5					2.2	---
07	260	(3.4)			175	1.2		---
08	230	5.8			150	1.4	4.4	---
09	225	7.7	(225)		130	1.8	4.8	(3.2)
10	220	(8.2)	(225)	(4.8)	125	2.2	5.1	---
11	225	8.8	230	(5.0)	120	2.4	5.6	(3.3)
12	225	8.7	235	(4.9)	120	2.5	4.7	---
13	225	(8.6)	230	(4.9)	120	2.5	4.8	(3.2)
14	230	8.7	(235)	(4.9)	125	2.3	4.7	(3.2)
15	230	(8.2)	(230)	(5.4)	135	2.1	4.2	---
16	225	(7.5)	(235)		145	1.8	2.3	---
17	230	(6.1)			165	1.4	1.8	(3.4)
18	220	5.5			(180)	(1.1)	2.0	3.0
19	240	4.2						2.9
20	275	3.8						2.7
21	300	3.7					1.3	2.6
22	320	3.2					1.3	2.5
23	345	3.2						(2.4)

Time: 60.0°W.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes.

*Average values except for f2 and fEs, which are median values.

Table 70

Sao Paulo, Brazil (23.5°S, 46.5°W)

July 1956*

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	7.1						3.05
01	240	6.6						3.1
02	240	6.6						3.2
03	220	5.6						3.4
04	230	4.0						3.15
05	270	3.7						2.9
06	290	3.1						3.0
07	250	6.6						3.2
08	240	8.4			---	130	2.6	3.3
09	240	10.6	230	---	120	3.1		3.15
10	270	11.8	220	---	120	3.4		3.1
11	260	12.4	210	4.6	120	3.5		3.1
12	(270)	12.5	200	4.6	120	3.6		2.8
13	250	13.0	200	4.3	120	3.6		2.8
14	(250)	13.2	210	4.3	125	3.4		2.8
15	270	13.3	230	---	130	3.2		2.9
16	250	13.6			130	2.8		2.9
17	250	12.8			---	<2.3	2.8	3.2
18	220	11.7					2.2	3.3
19	220	9.6					2.5	3.3
20	240	9.3					2.2	3.0
21	240	8.8						3.0
22	230	9.0						3.2
23	230	8.4					2.0	3.1

Time: Local.

Sweep: 1.75 Mc to 20.0 Mc in 7 minutes 18 seconds.

*Data observed only July 1 through July 16, inclusive.

Table 71

Poitiers, France (46.6°N, 0.3°E)

May 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	295	6.9					2.2	---
01	300	6.7					2.2	(2.50)
02	300	6.4					2.0	2.60
03	290	6.1					2.2	2.60
04	285	5.8					2.4	2.65
05	275	6.0	260	2.9	---	1.8	2.7	2.85
06	300	6.6	245	4.1	110	2.6	3.2	2.80
07	310	6.9	240	4.6	105	3.0	3.6	2.80
08	330	7.4	230	4.9	100	3.3	3.8	2.85
09	350	7.8	225	5.2	100	3.6	4.1	2.75
10	330	7.8	220	5.5	100	3.6	4.1	2.80
11	350	8.1	220	5.5	100	3.7	4.3	2.70
12	350	8.6	230	5.6	100	3.8	3.5	2.80
13	350	8.6	230	5.5	100	3.7	4.2	2.80
14	345	8.7	230	5.4	100	3.6	4.0	2.80
15	330	8.6	230	5.2	100	3.5	3.9	2.85
16	310	8.3	240	4.9	105	3.3	3.6	2.85
17	300	8.3	250	4.5	110	3.0	3.6	---
18	275	8.0	250	4.0	110	2.5	3.1	---
19	260	8.5	(210)	(2.0)		1.6	3.3	---
20	255	(7.9)					3.0	---
21	255	(7.1)					2.6	---
22	275	7.0					2.3	---
23	300	7.0					2.4	---

Time: 0.0°.

Sweep: 1.6 Mc to 16.8 Mc in 1 minute.

Table 72

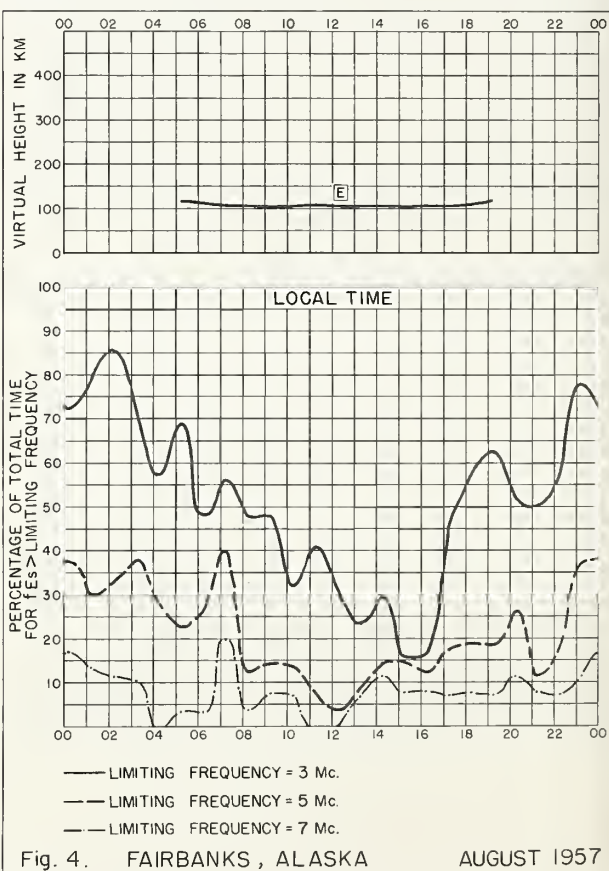
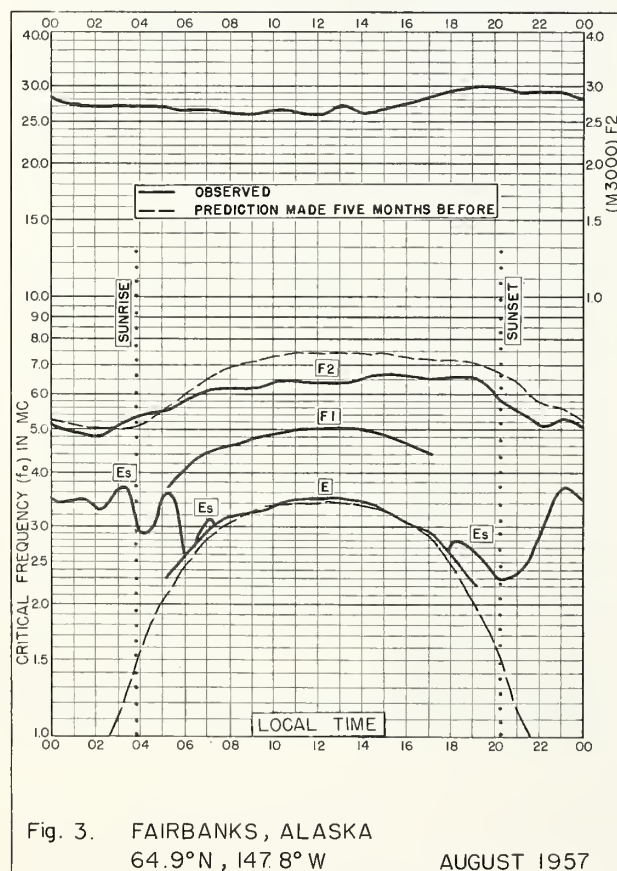
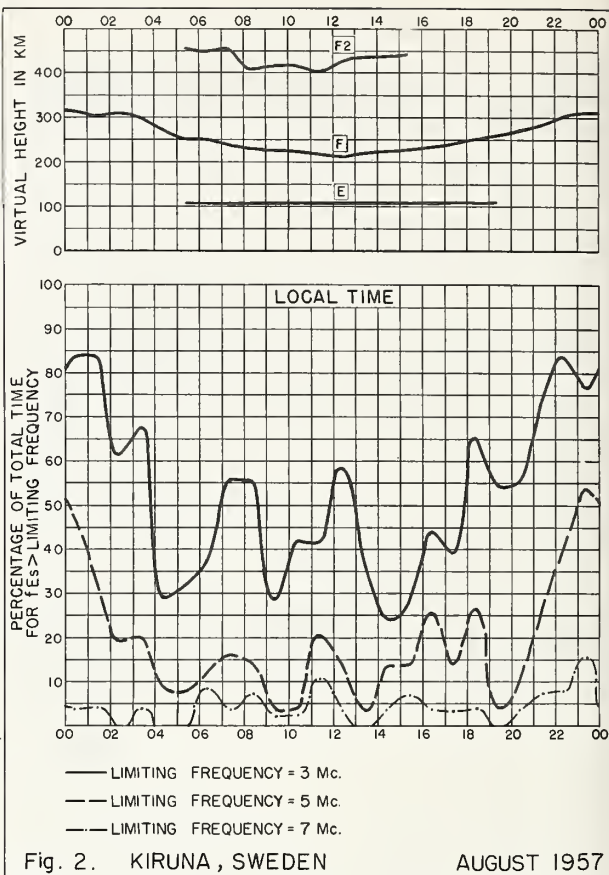
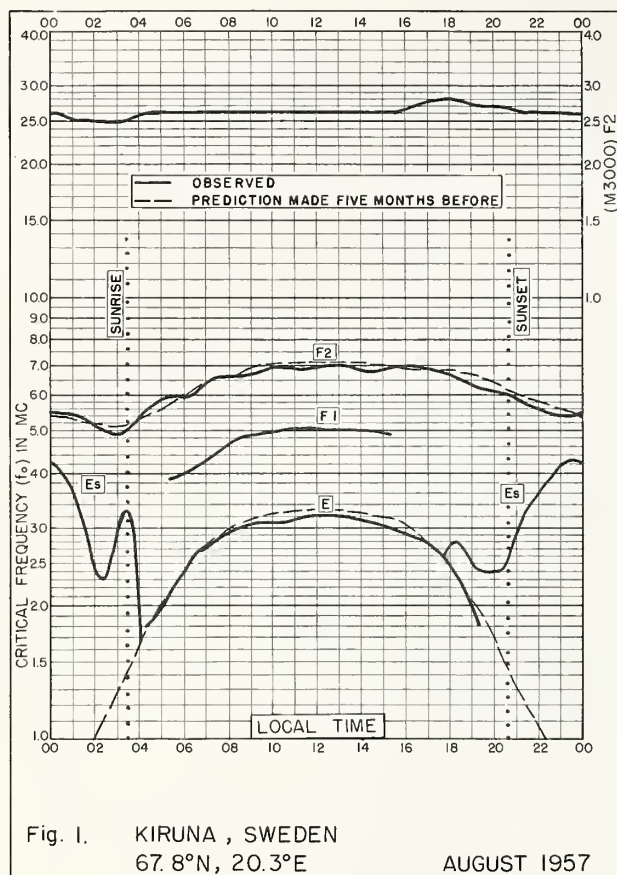
Casablanca, Morocco (33.6°N, 7.6°W)

May 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	<310	>8.60					3.1	2.50
01	<300	>8.45					3.0	(2.50)
02	<295	8.40					2.3	2.55
03	<290	8.40					2.5	2.70
04	<275	8.05					2.5	2.70
05	<275	7.20					2.7	2.70
06	260	7.60	270	3.30	---	1.90	3.4	2.90
07	250	7.80	245	3.90	115	2.60	3.5	3.10
08	260	8.20	230	4.50	110	3.10	4.5	3.10
09	295	8.30	230	5.15	110	3.45	4.8	2.90
10	335	8.75	225	---	110	3.65	5.3	2.80
11	350	9.45	210	---	110	3.80	5.2	2.70
12	350	10.40	250	6.00	110	(3.90)	4.6	2.70
13	350	11.10	250	6.00	110	(4.00)		2.75
14	340	11.55	250	(6.00)	110	(3.90)		2.75
15	325	>11.30	245	5.70	110	3.80		2.80
16	325	11.00	240	(5.20)	110	3.50	4.2	2.80
17	300	10.90	245	---	115	3.20	5.3	2.85
18	300	(10.95)	250	(4.50)	120	2.60	6.3	(2.90)
19	<260	>10.30	---	---	---	1.80	4.7	(2.95)
20	<250	>8.80					5.0	(2.70)
21	<270	>8.60					4.2	2.60
22	<310	>8.60					4.2	2.50
23	<320	>8.60					3.5	2.45

Time: 0.0°.

Sweep: 1.6 Mc to 16.0 Mc in 1 minute 15 seconds.



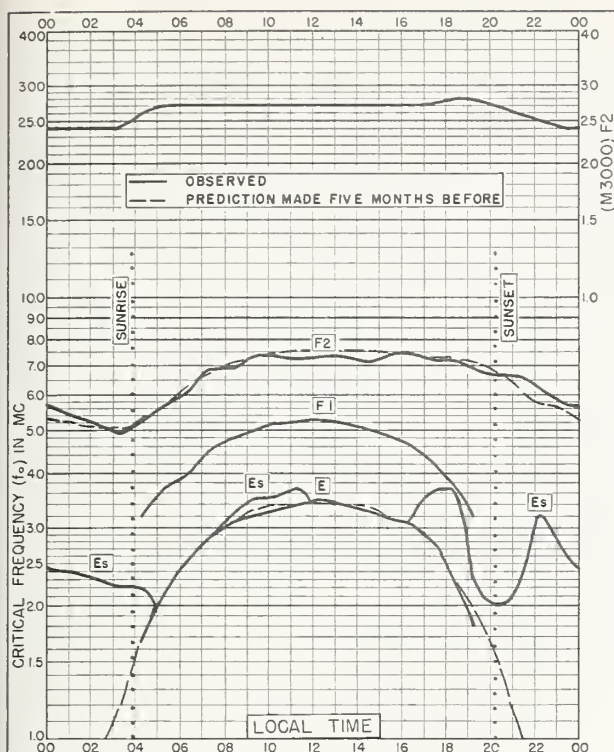


Fig. 5. LYCKSELE, SWEDEN
64.6°N, 18.8°E

AUGUST 1957

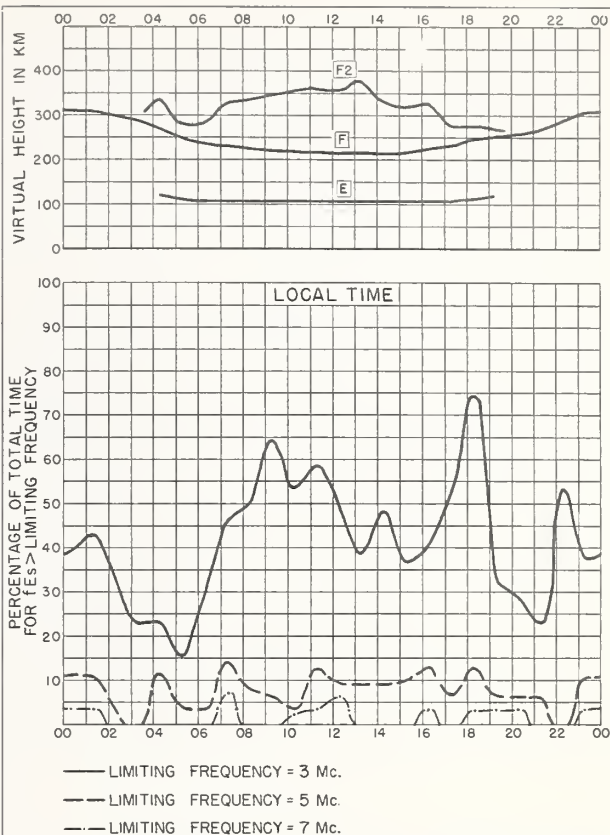


Fig. 6. LYCKSELE, SWEDEN

AUGUST 1957

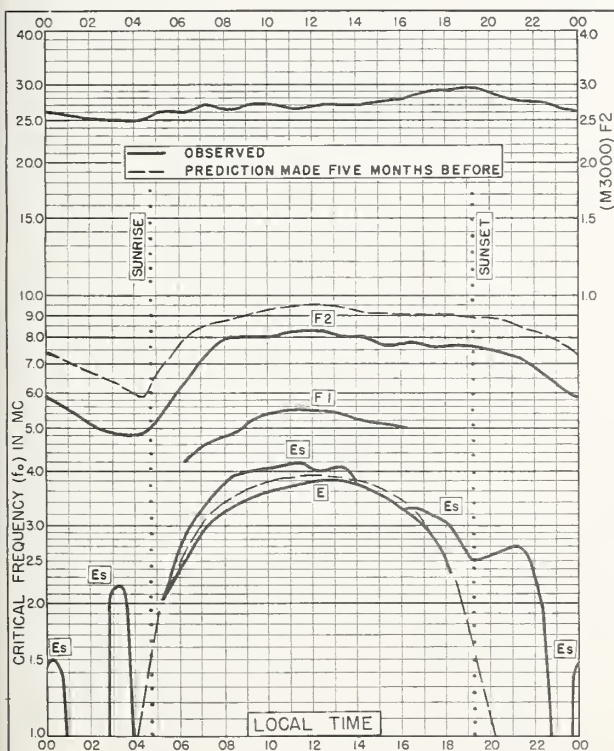


Fig. 7. ADAK, ALASKA
51.9°N, 176.6°W

AUGUST 1957

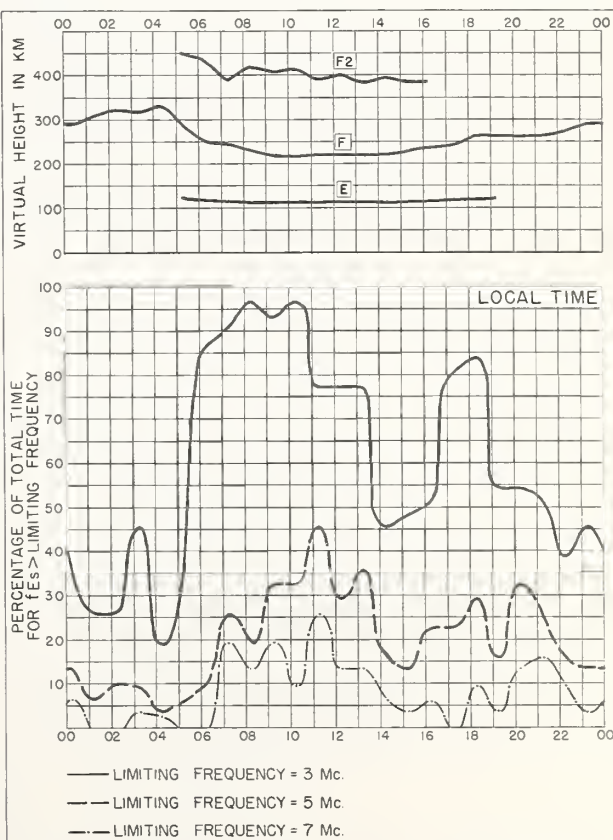


Fig. 8. ADAK, ALASKA

AUGUST 1957

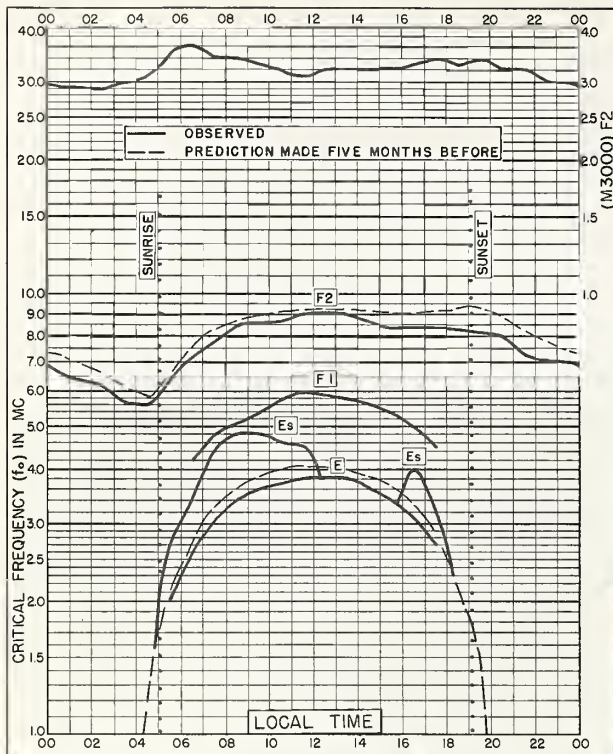


Fig. 9. SCHWARZENBURG, SWITZERLAND
46.8°N, 7.3°E
AUGUST 1957

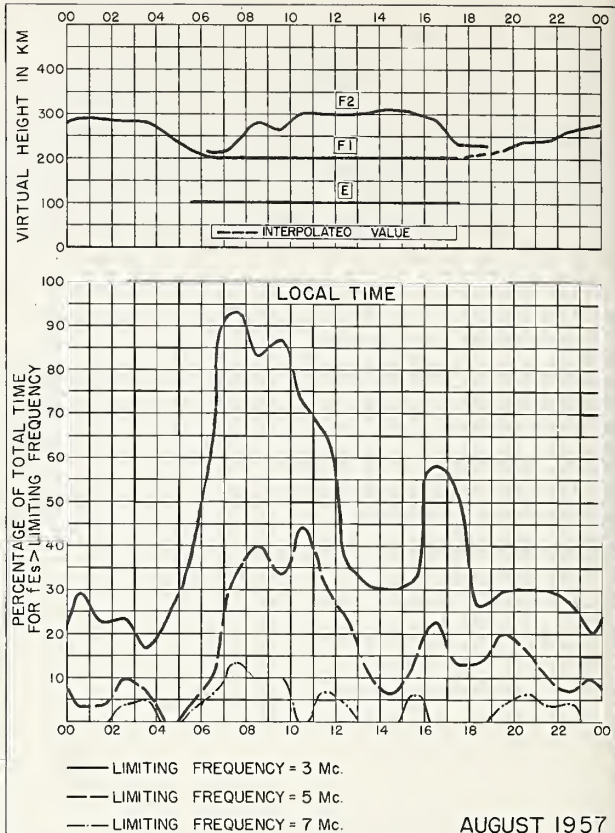


Fig. 10. SCHWARZENBURG, SWITZERLAND

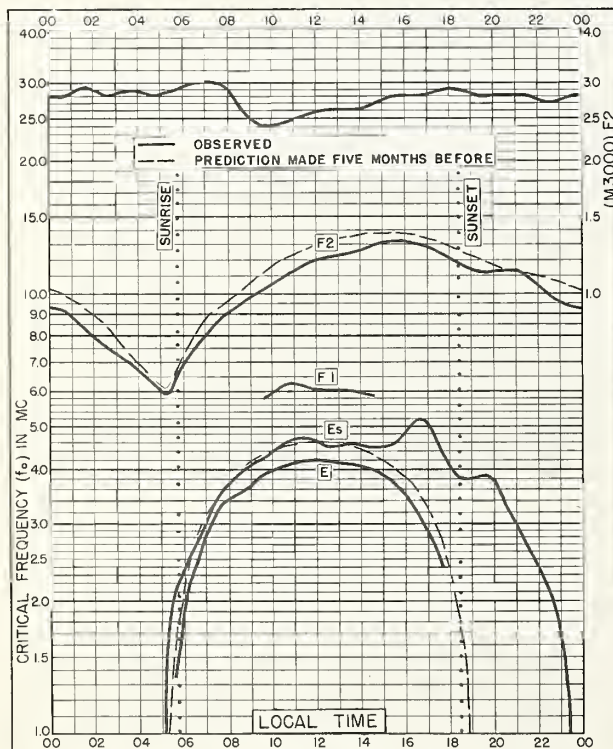


Fig. 11. MAUI, HAWAII
20.8°N, 156.5°W
AUGUST 1957

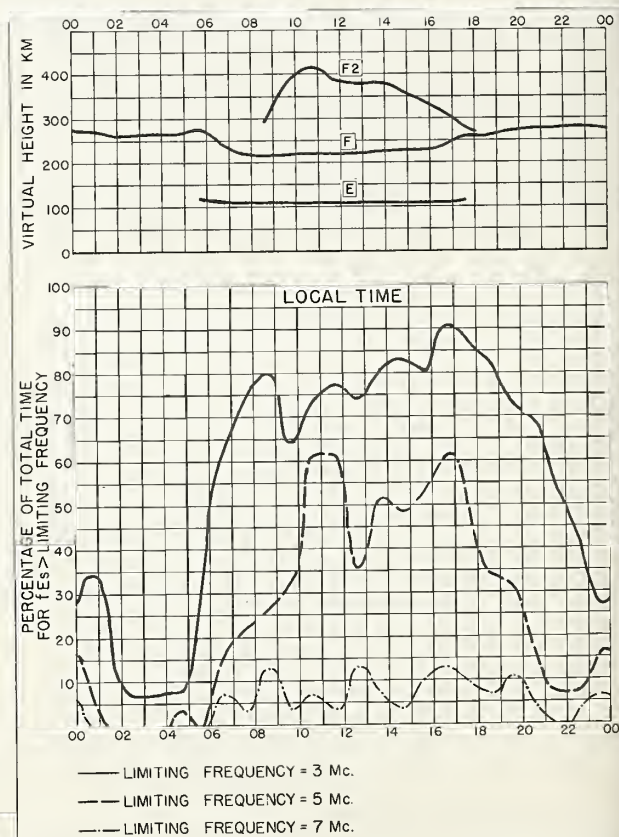


Fig. 12. MAUI, HAWAII
AUGUST 1957

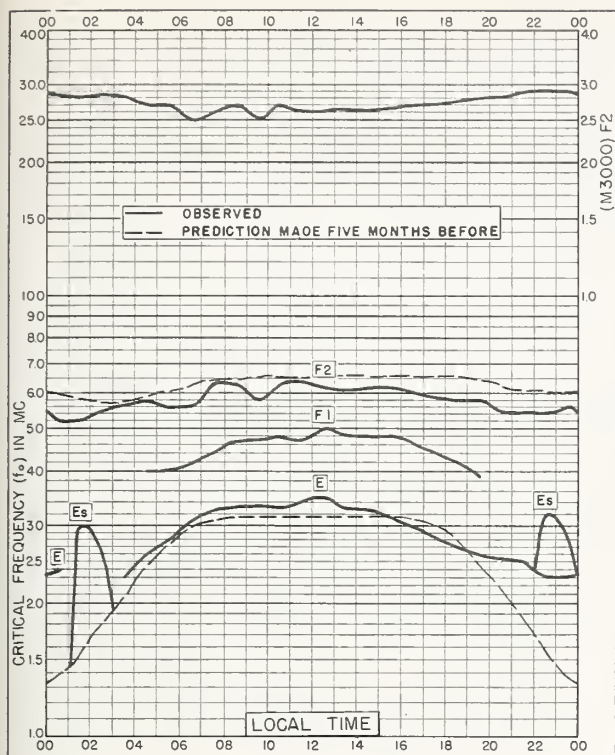


Fig. 13. POINT BARROW, ALASKA
71.3°N, 156.8°W

JULY 1957

NBS 503

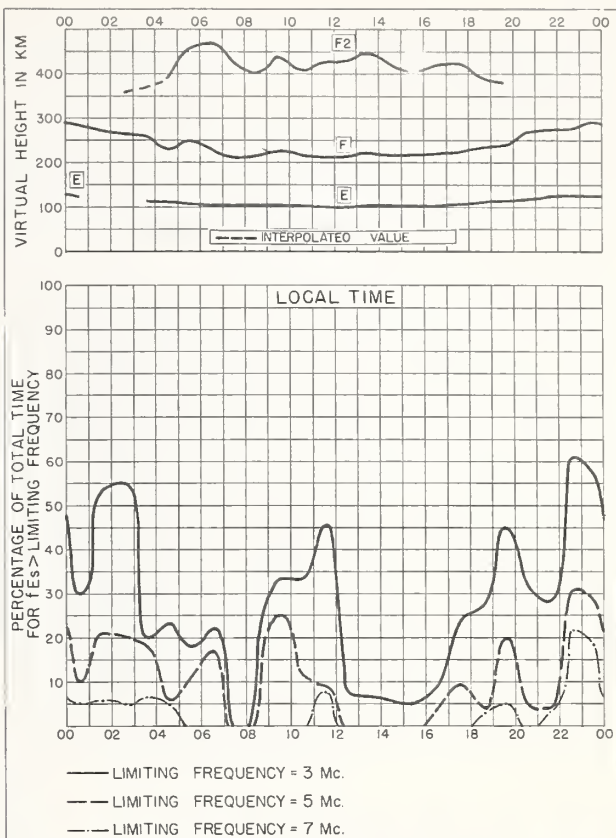


Fig. 14. POINT BARROW, ALASKA

JULY 1957

NBS 490

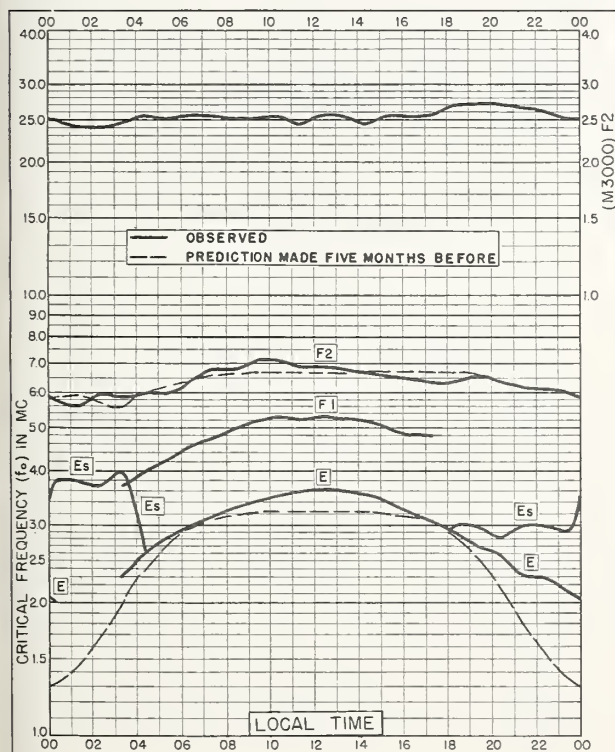


Fig. 15. TROMSØ, NORWAY
69.7°N, 19.0°E

JULY 1957

NBS 503

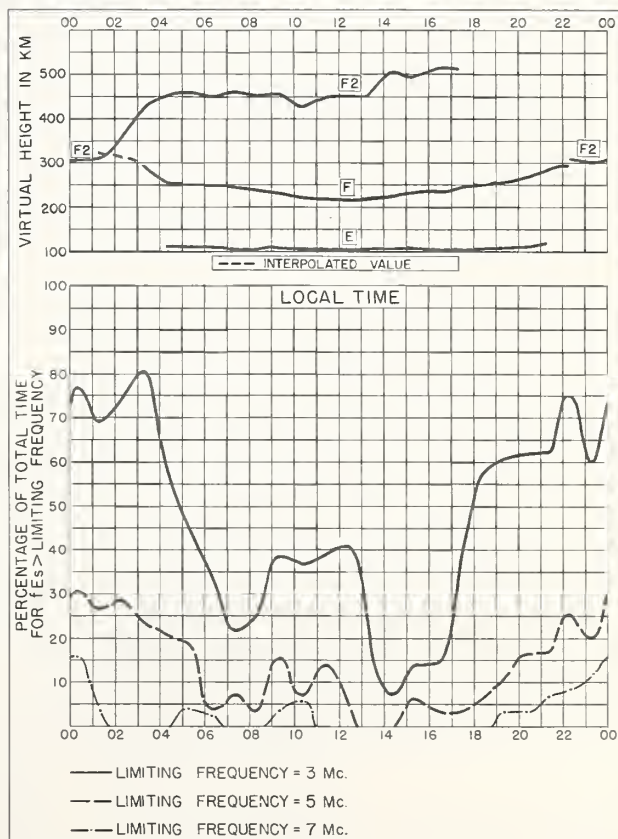


Fig. 16. TROMSØ, NORWAY

JULY 1957

NBS 490

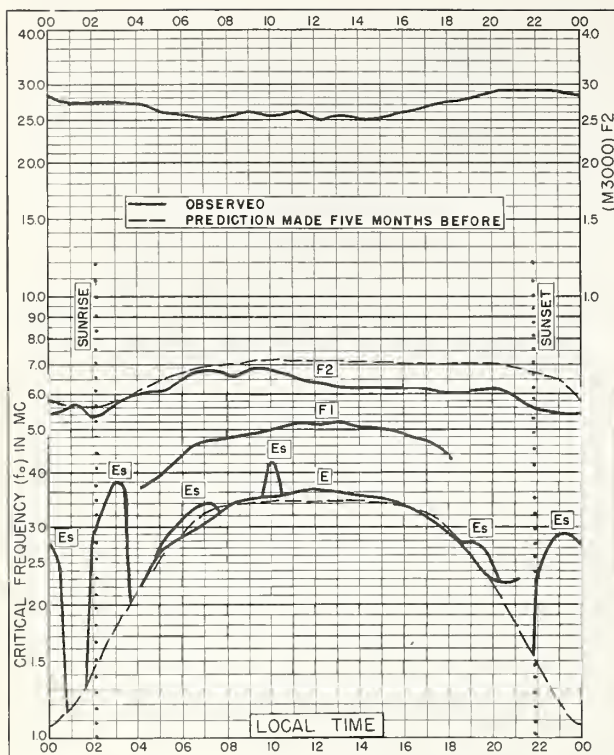


Fig. 17. FAIRBANKS, ALASKA
64.9°N, 147.8°W

JULY 1957

NBS 503

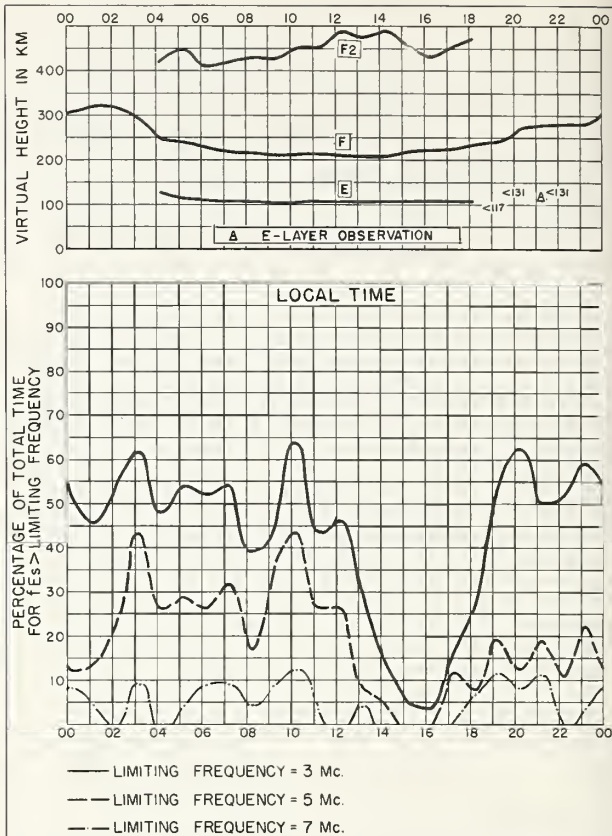


Fig. 18. FAIRBANKS, ALASKA

JULY 1957

Commerce Standard Boulder, Colo.

NBS 450

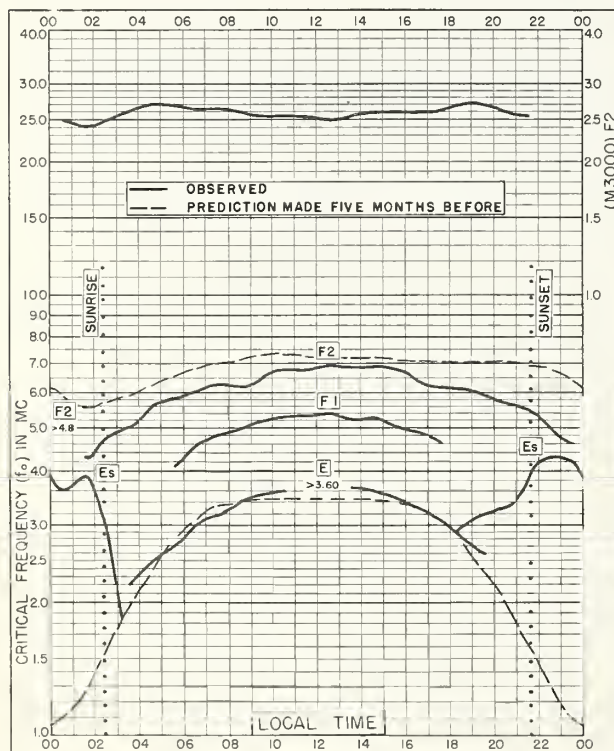


Fig. 19. REYKJAVIK, ICELAND
64.1°N, 21.8°W

JULY 1957

NBS 503

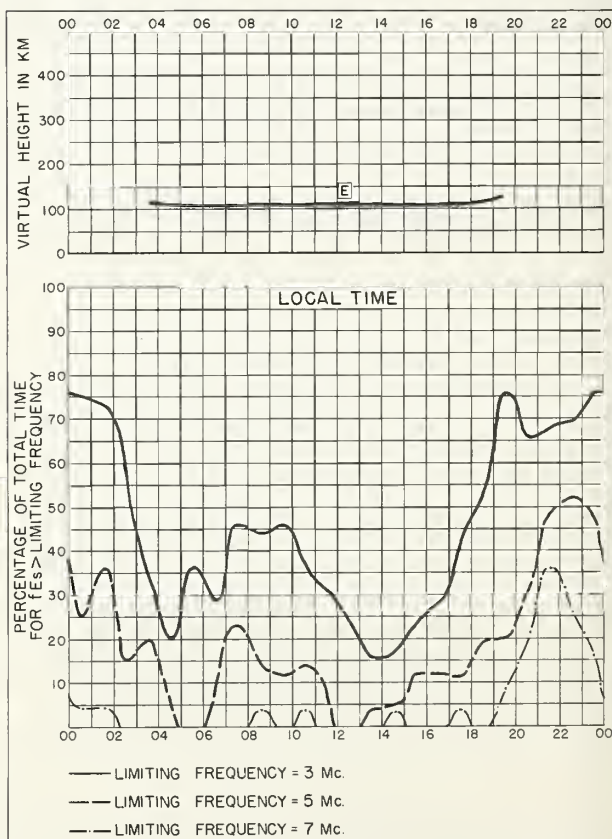


Fig. 20. REYKJAVIK, ICELAND

JULY 1957

Commerce Standard Boulder, Colo.

NBS 450

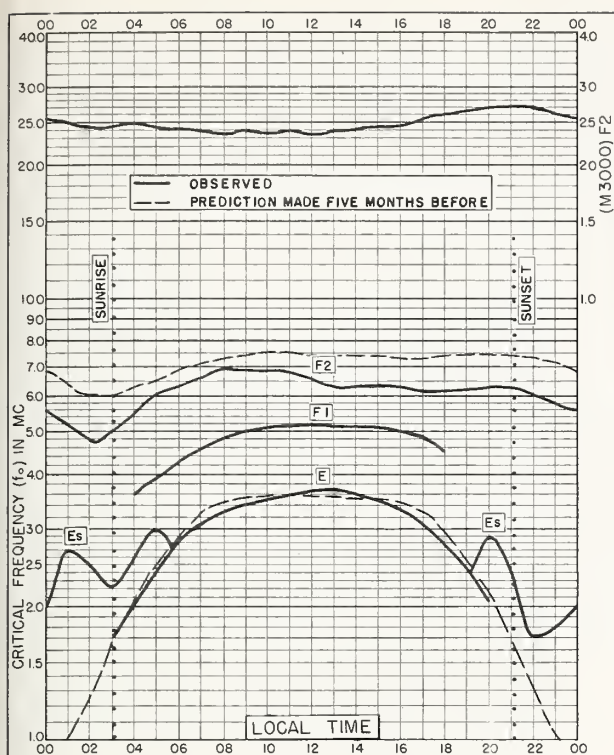


Fig. 21. ANCHORAGE, ALASKA
61.2°N, 149.9°W

JULY 1957

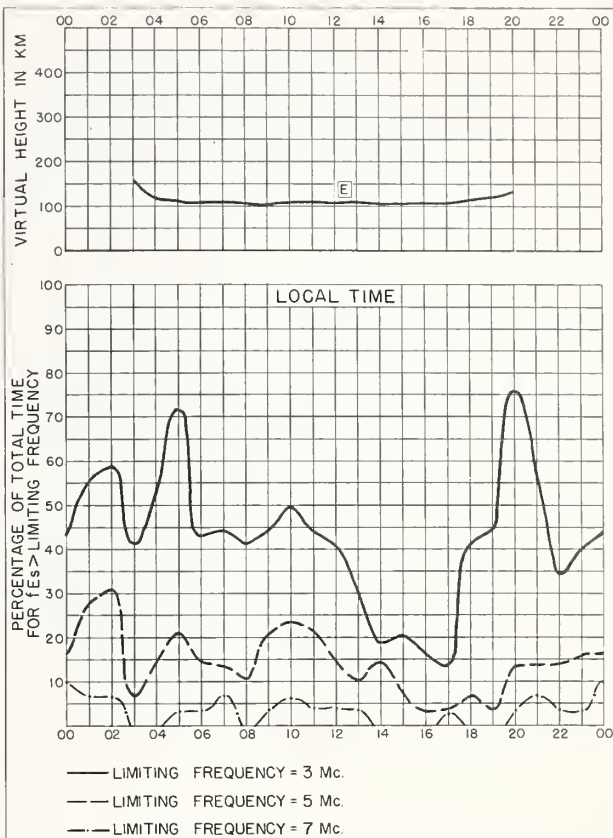


Fig. 22. ANCHORAGE, ALASKA

JULY 1957

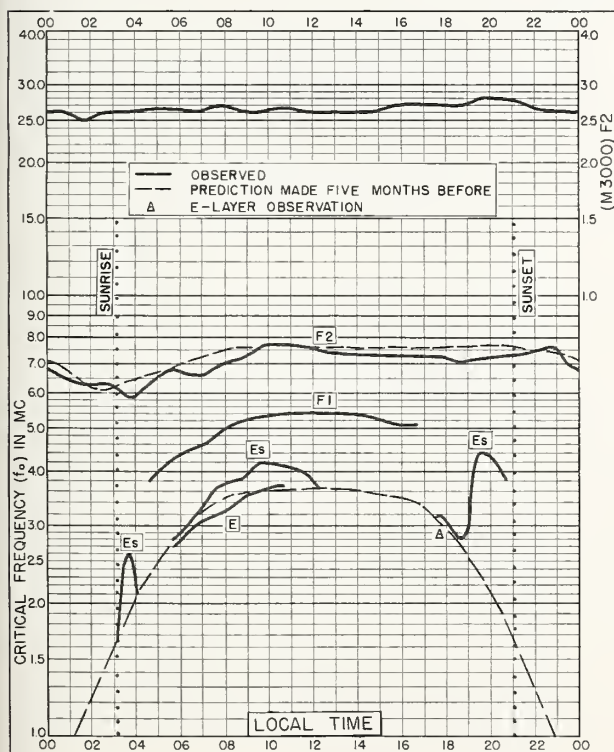


Fig. 23. NURMIJARVI, FINLAND
60.5°N, 24.6°E

JULY 1957

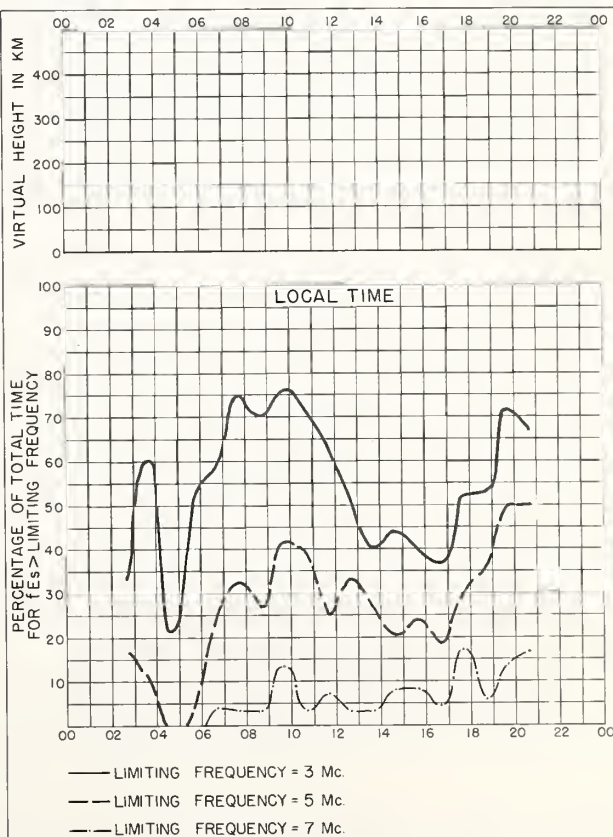


Fig. 24. NURMIJARVI, FINLAND

JULY 1957

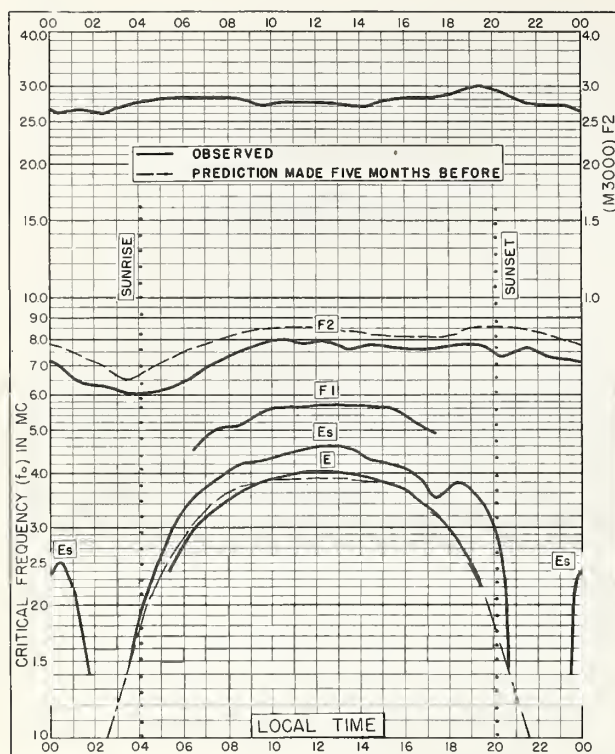


Fig. 25. De BILT, HOLLAND
52.1°N, 5.2°E

JULY 1957

NBS 503

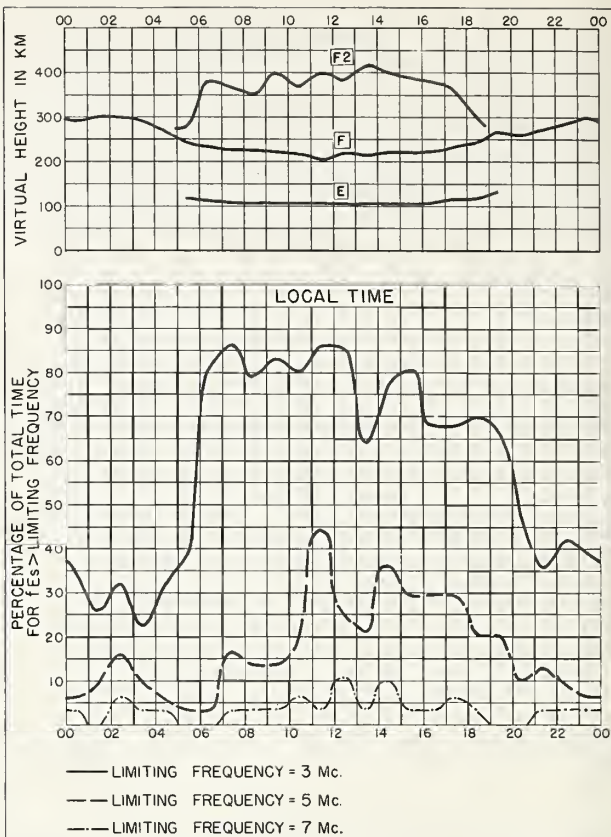


Fig. 26. De BILT, HOLLAND

JULY 1957

NBS 490

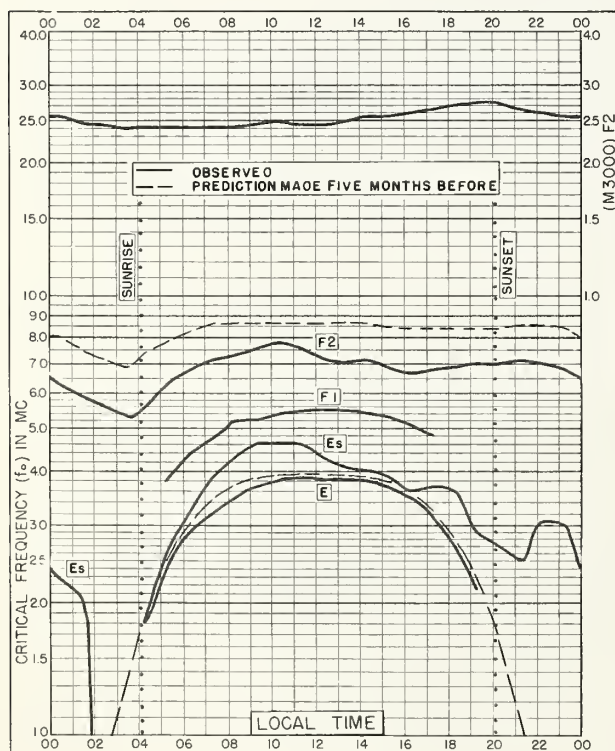


Fig. 27. ADAK, ALASKA
51.9°N, 176.6°W

JULY 1957

NBS 503

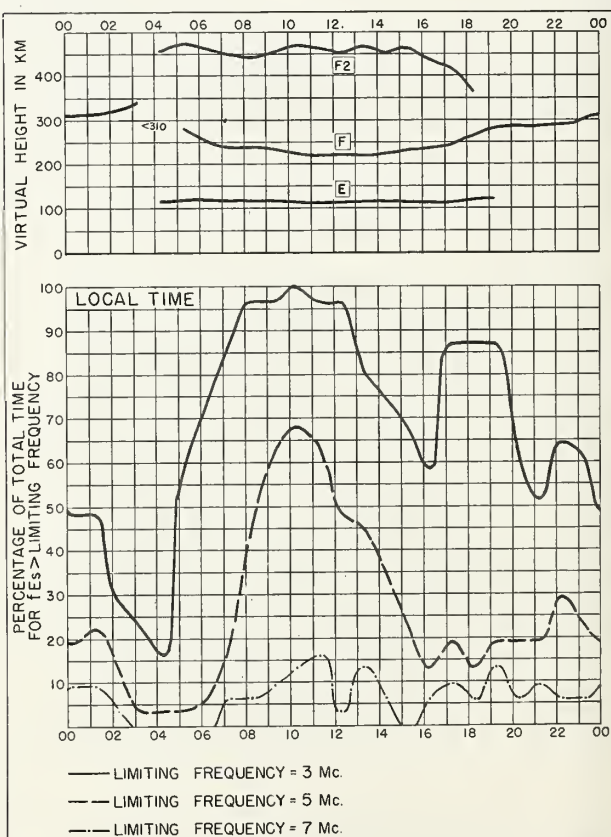


Fig. 28. ADAK, ALASKA

JULY 1957

NBS 490

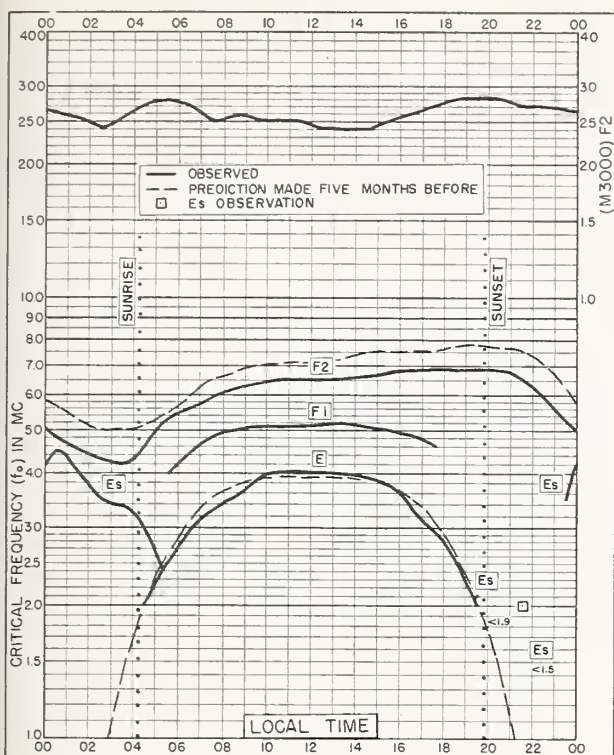


Fig. 29. WINNIPEG, CANADA
49.9°N, 97.4°W

JULY 1957

NBS 503

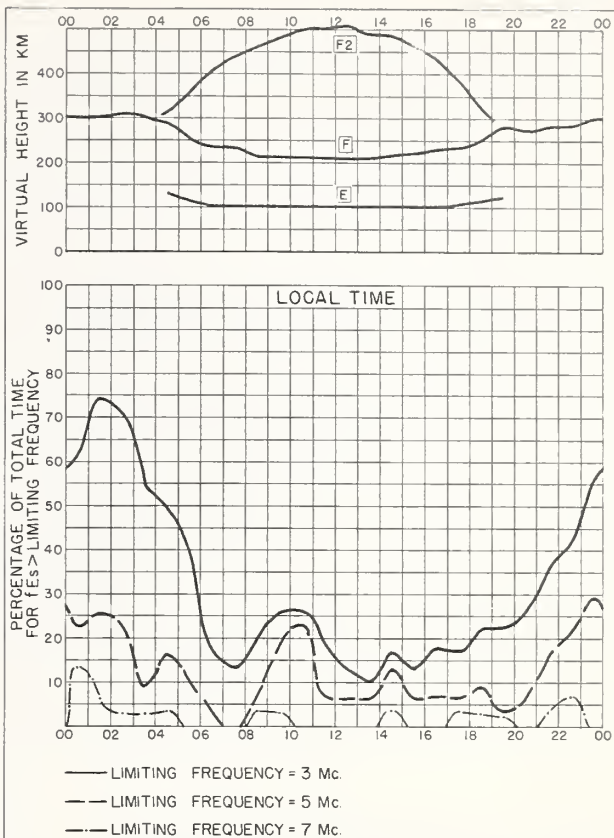


Fig. 30. WINNIPEG, CANADA

JULY 1957

NBS 490

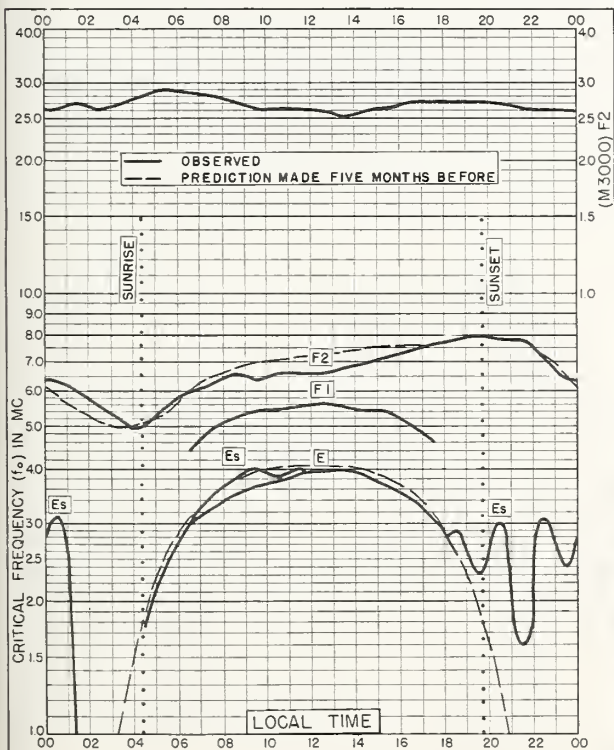


Fig. 31. ST. JOHN'S, NEWFOUNDLAND
47.6°N, 52.7°W

JULY 1957

NBS 503

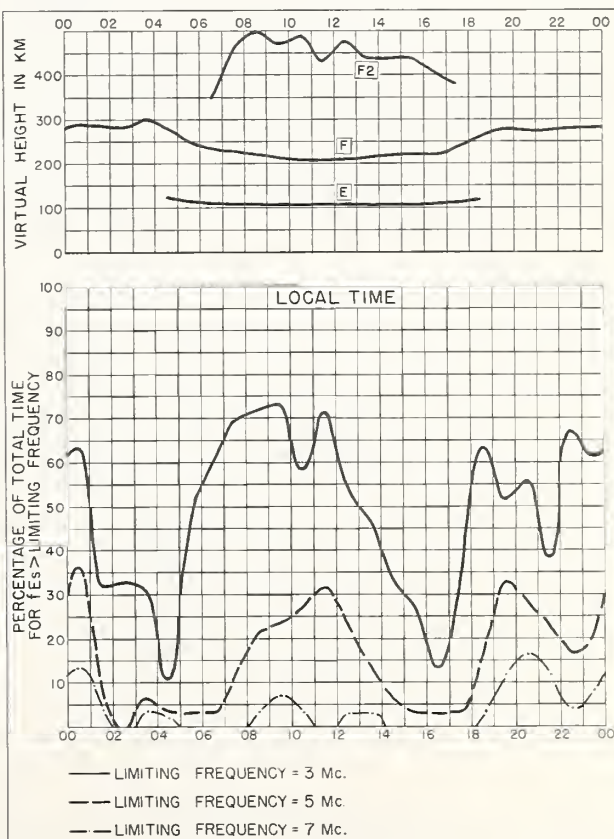


Fig. 32. ST. JOHN'S, NEWFOUNDLAND

JULY 1957

NBS 490

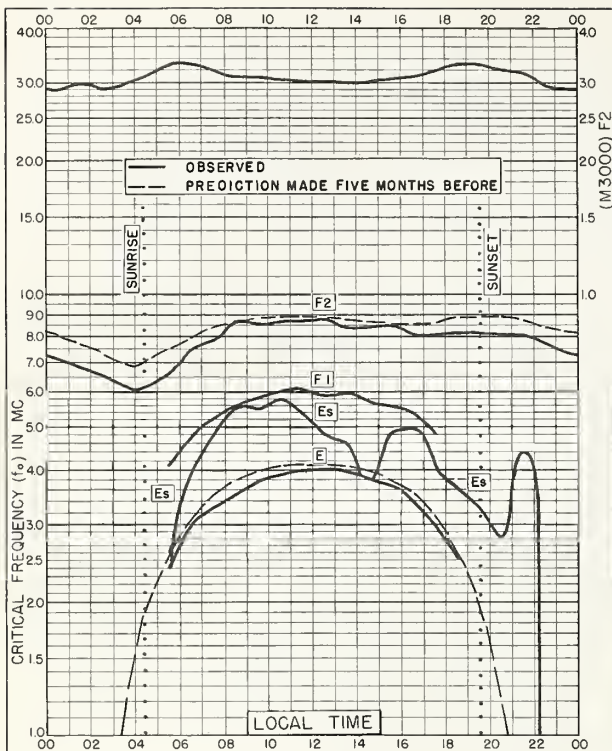


Fig. 33. SCHWARZENBURG, SWITZERLAND
46.8°N, 7.3°E
JULY 1957

NBS 503

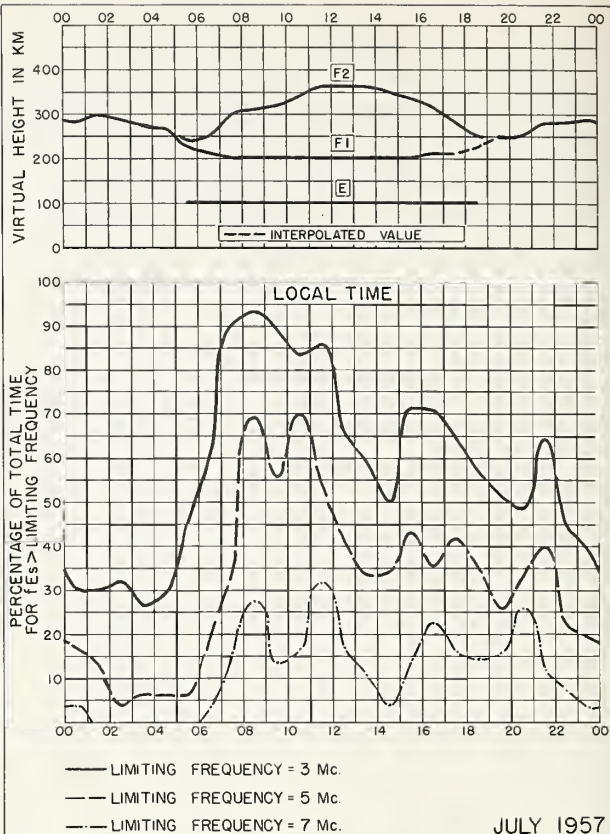


Fig. 34. SCHWARZENBURG, SWITZERLAND

JULY 1957

NBS 490

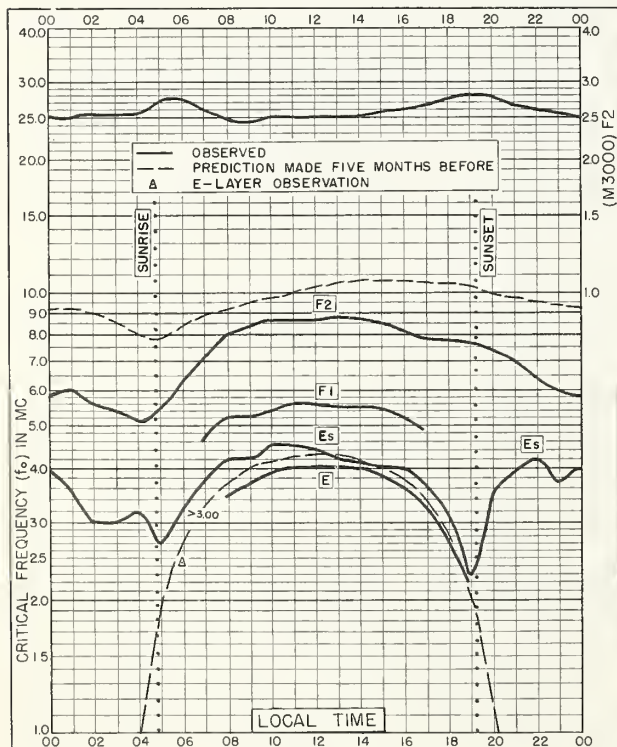


Fig. 35. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W
JULY 1957

NBS 503

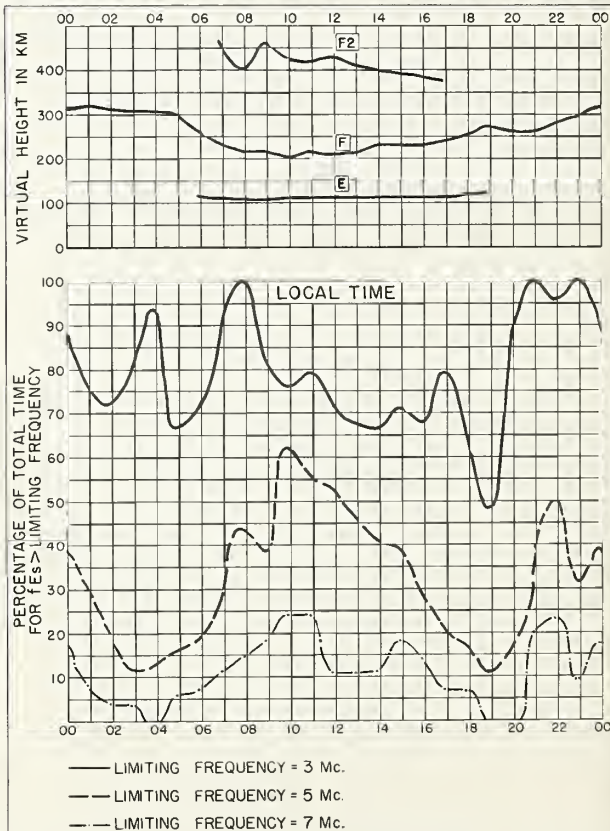


Fig. 36. SAN FRANCISCO, CALIFORNIA
JULY 1957

NBS 490

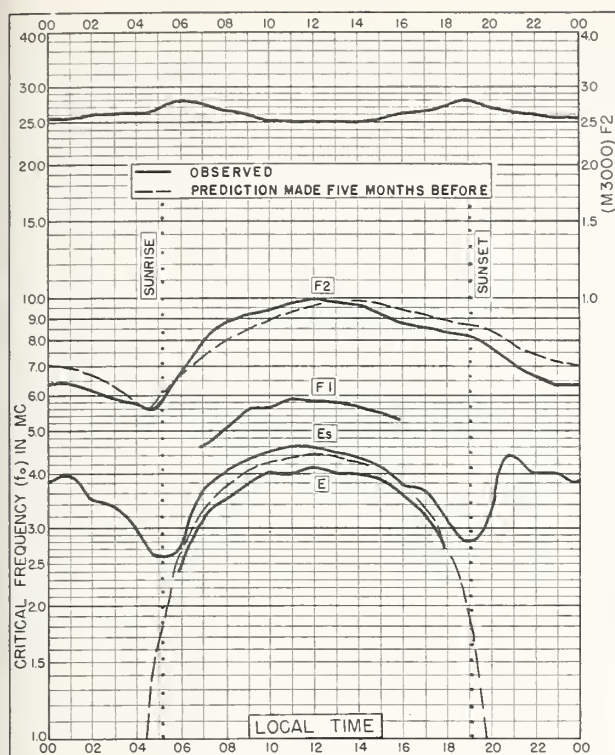


Fig. 37. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W

JULY 1957

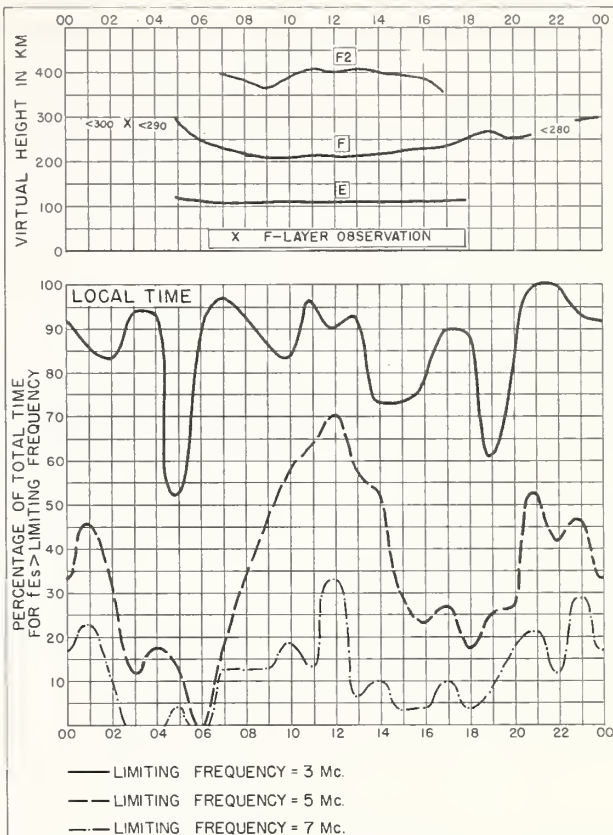


Fig. 38. WHITE SANDS, NEW MEXICO JULY 1957

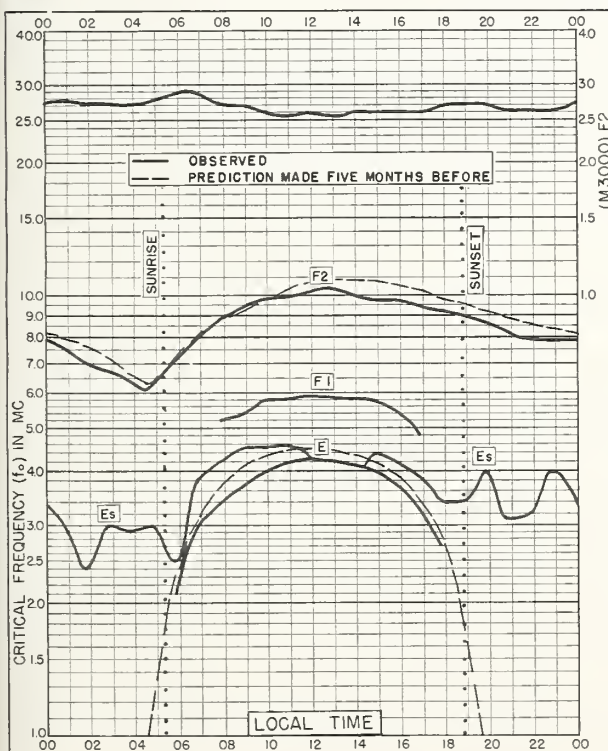


Fig. 39. GRAND BAHAMA I.
26.6°N, 78.2°W

JULY 1957

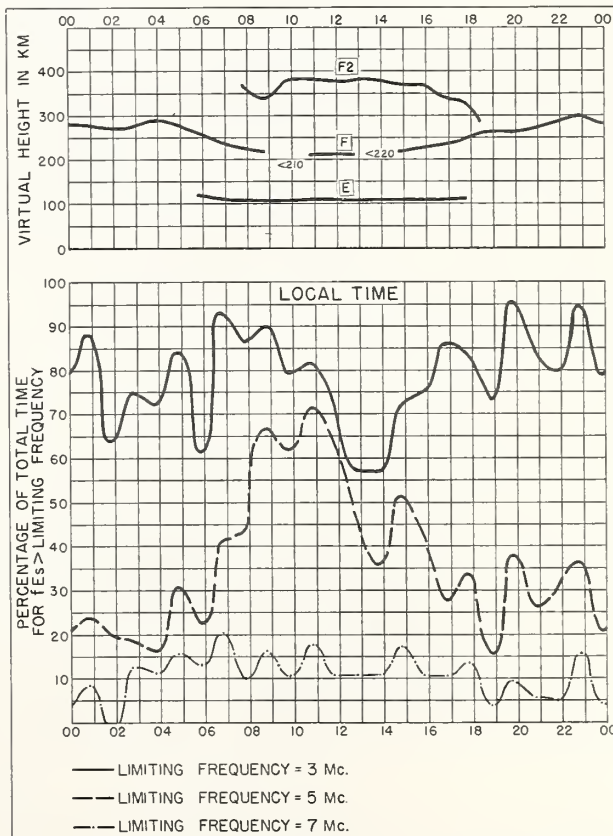


Fig. 40. GRAND BAHAMA I.

JULY 1957

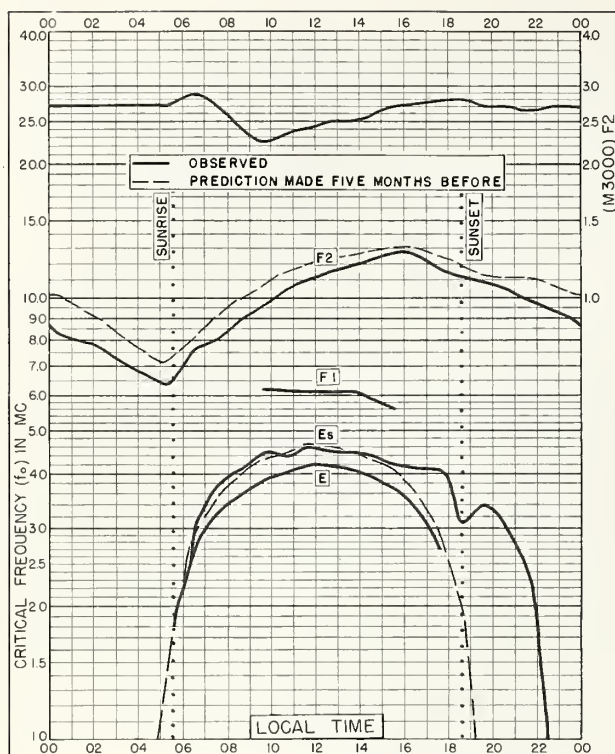


Fig. 41. MAUI, HAWAII
20.8°N, 156.5°W

JULY 1957

NBS 503

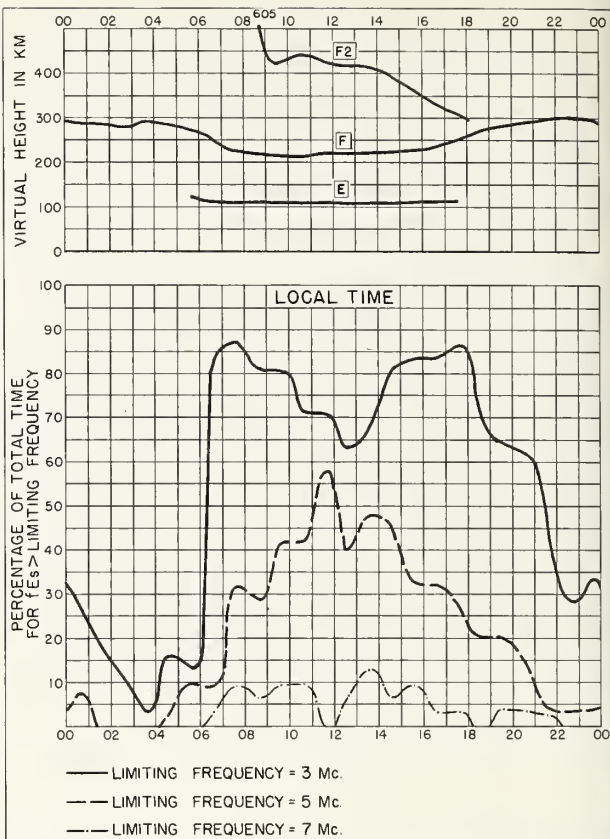


Fig. 42. MAUI, HAWAII

JULY 1957

NBS 490

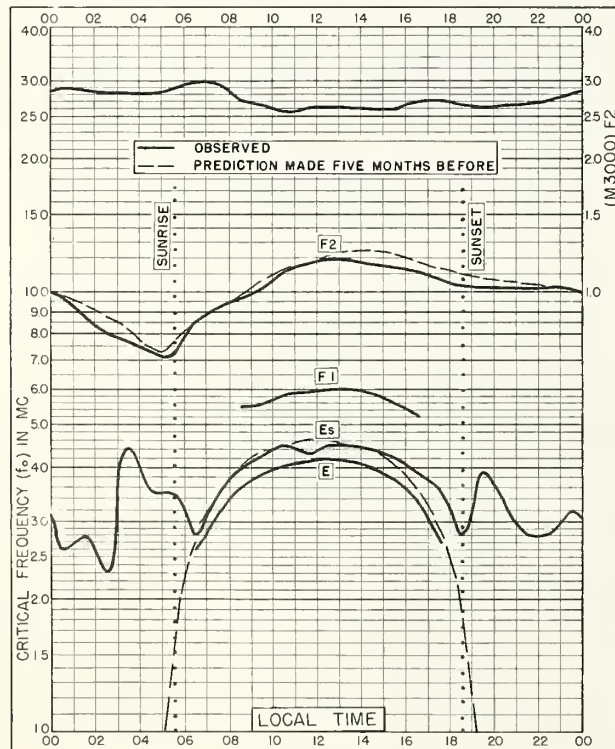


Fig. 43. PUERTO RICO, W.I.
18.5°N, 67.2°W

JULY 1957

NBS 503

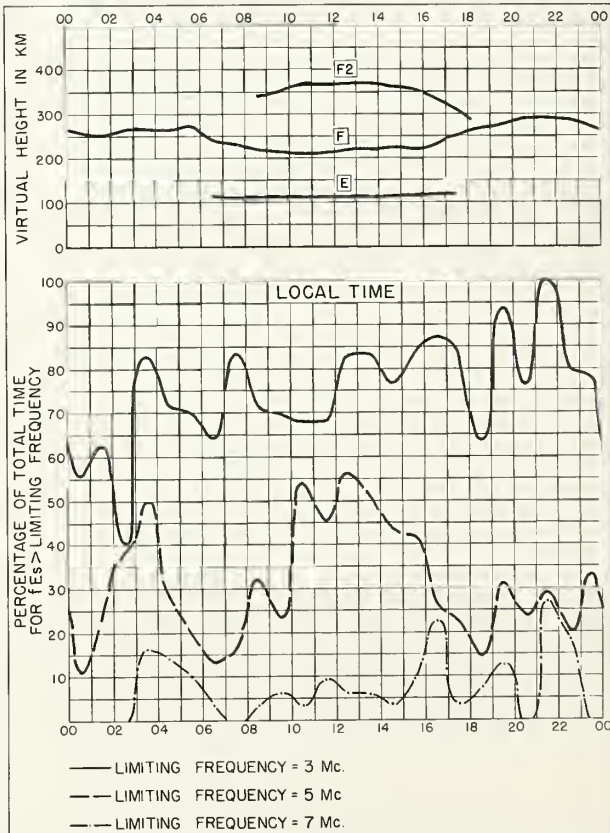


Fig. 44. PUERTO RICO, W.I.

JULY 1957

NBS 490

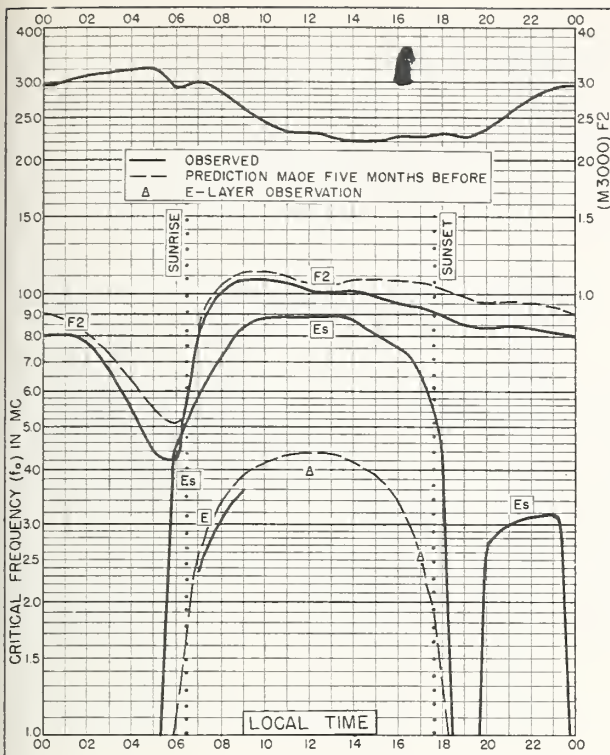


Fig. 45. HUANCAYO, PERU
12.0°S, 75.3°W

JULY 1957

NBS 503

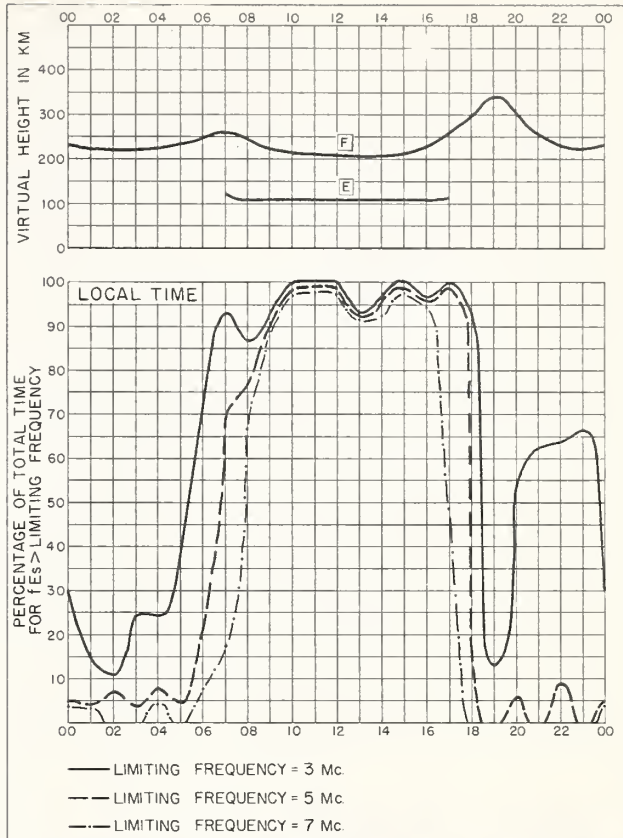


Fig. 46. HUANCAYO, PERU

JULY 1957

NBS 490

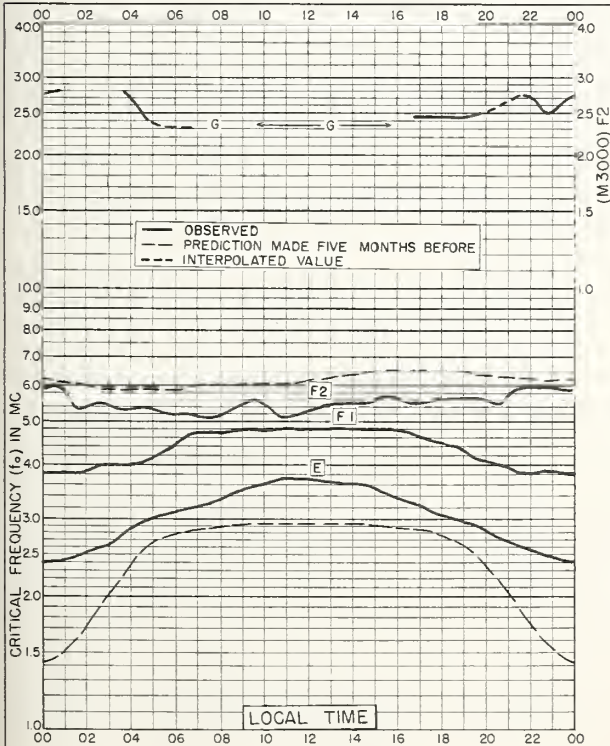


Fig. 47. RESOLUTE BAY, CANADA
74.7°N, 94.9°W

JUNE 1957

NBS 503

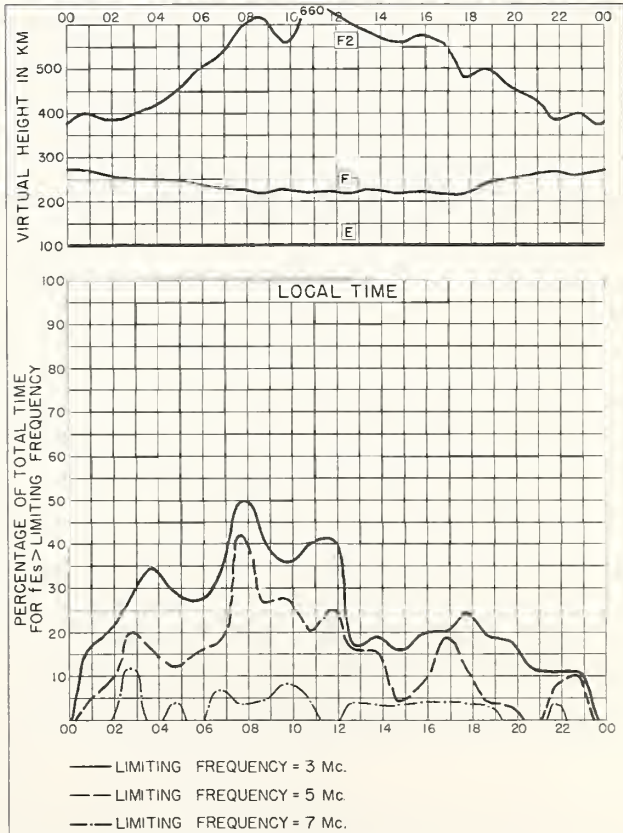


Fig. 48. RESOLUTE BAY, CANADA

JUNE 1957

NBS 490

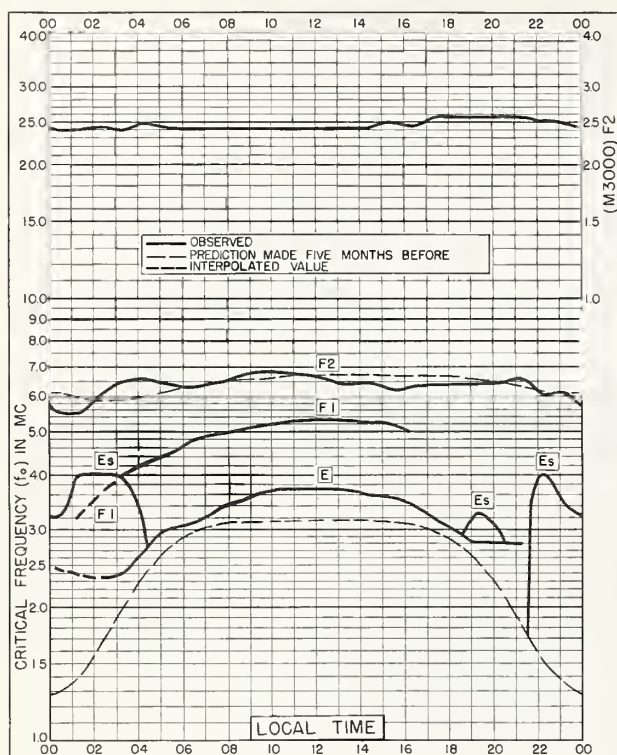


Fig. 49. TROMSØ, NORWAY
69.7°N, 19.0°E

JUNE 1957

NBS 503

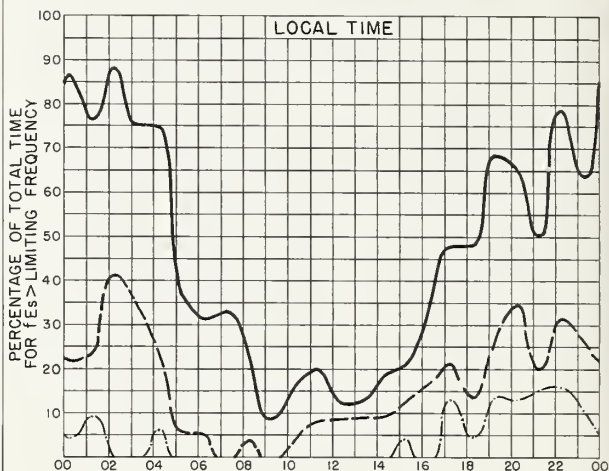
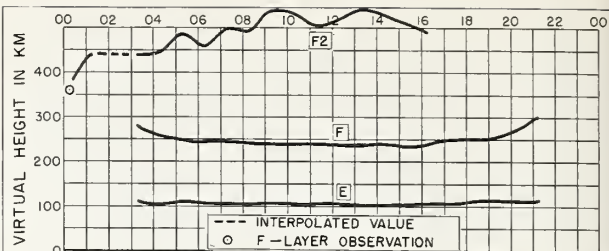


Fig. 50. TROMSØ, NORWAY

JUNE 1957

NBS 490

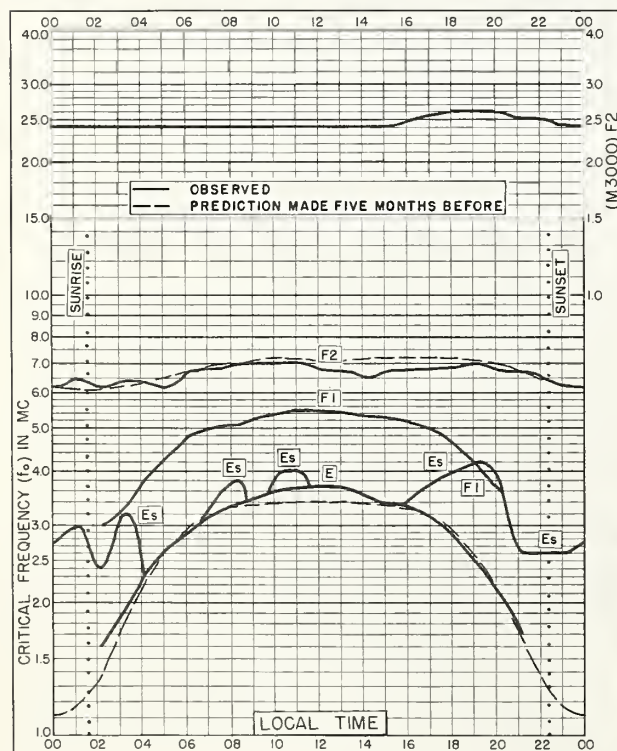


Fig. 51. LYCKSELE, SWEDEN
64.6°N, 18.8°E

JUNE 1957

NBS 503

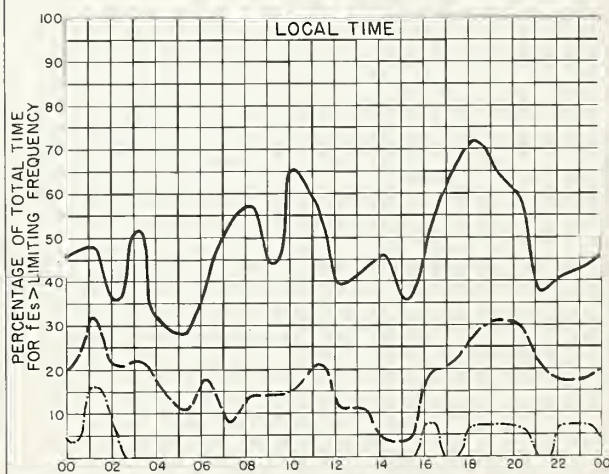
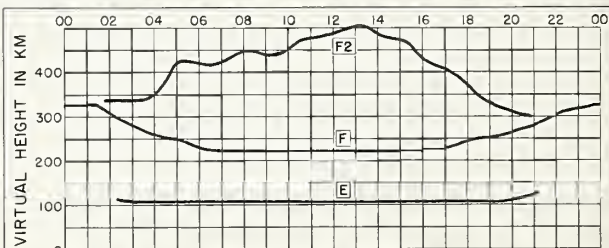


Fig. 52. LYCKSELE, SWEDEN

JUNE 1957

NBS 490

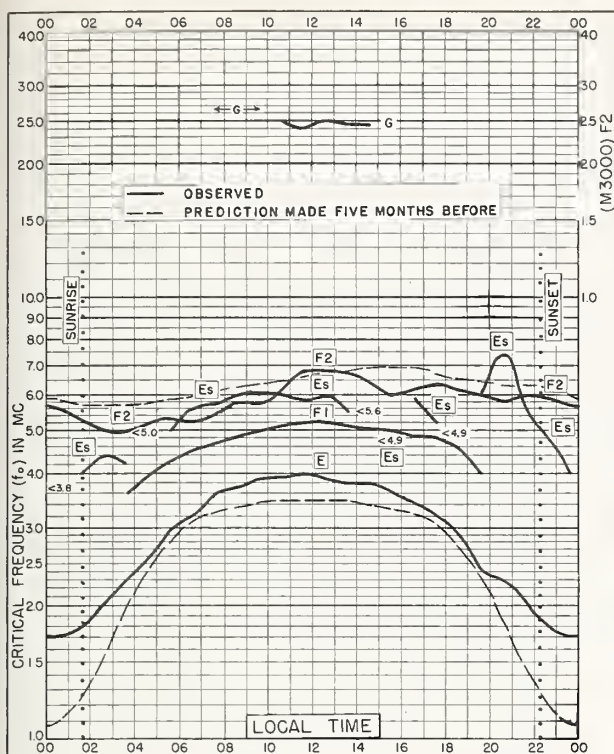


Fig. 53. BAKER LAKE, CANADA
64.3°N, 96.0°W

JUNE 1957

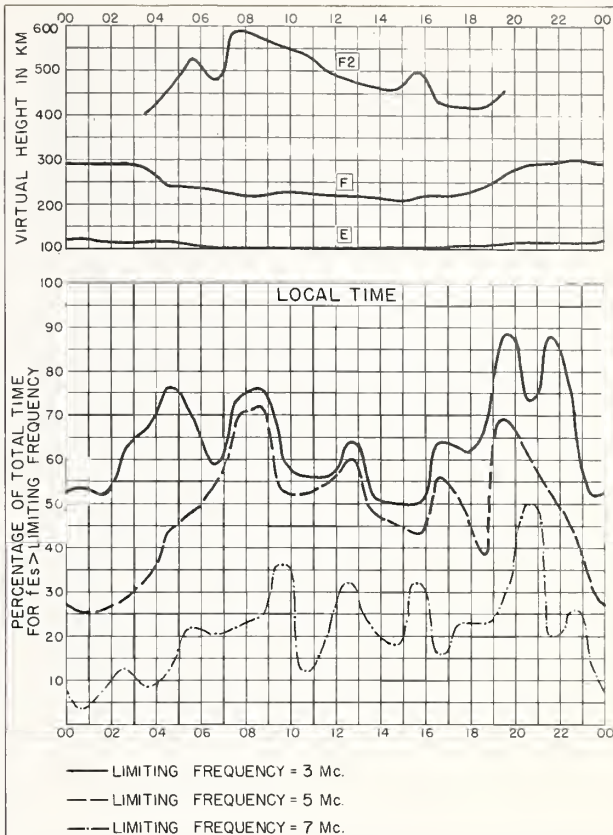


Fig. 54. BAKER LAKE, CANADA

JUNE 1957

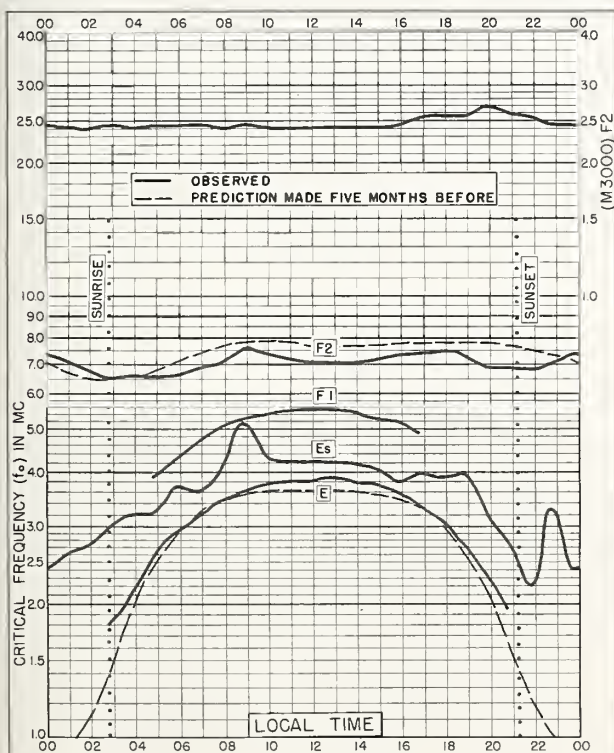


Fig. 55. OSLO, NORWAY
60.0°N, 11.1°E

JUNE 1957

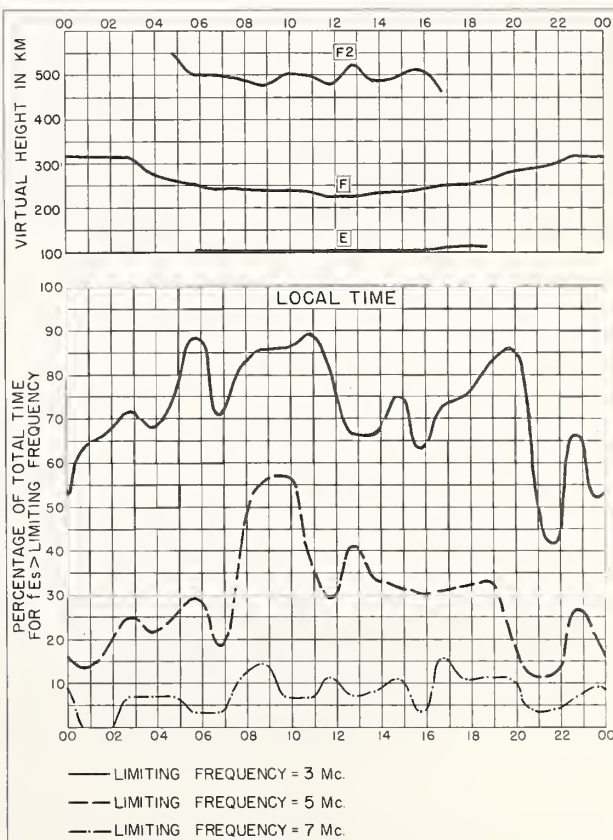


Fig. 56. OSLO, NORWAY

JUNE 1957

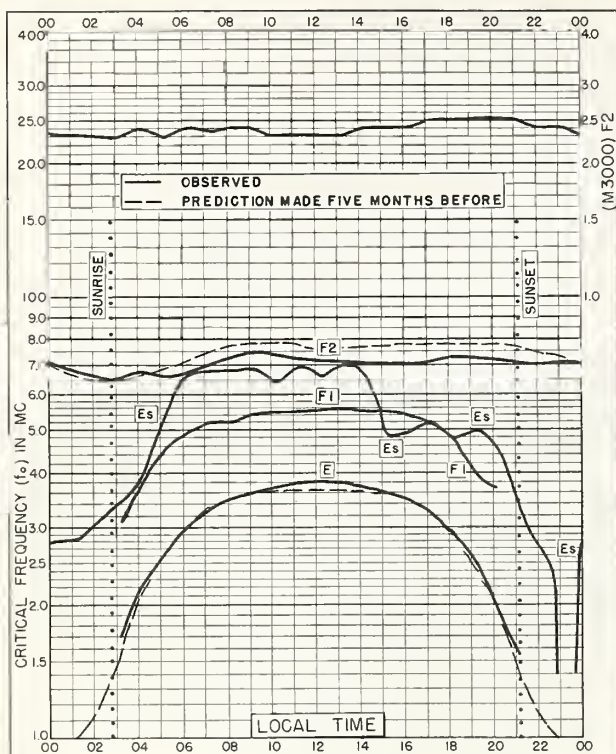


Fig. 57. UPSALA, SWEDEN
59.8°N, 17.6°E

JUNE 1957

NBS 503

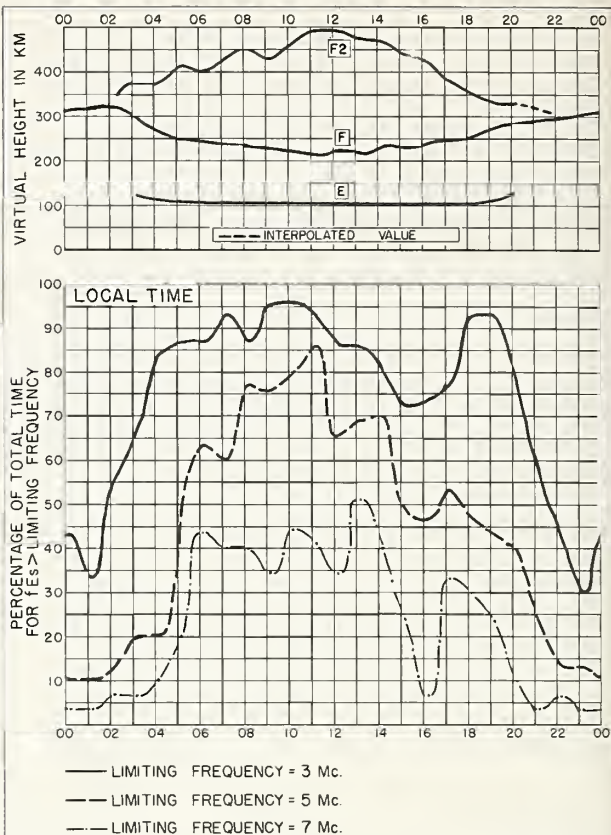


Fig. 58. UPSALA, SWEDEN

JUNE 1957

NBS 490

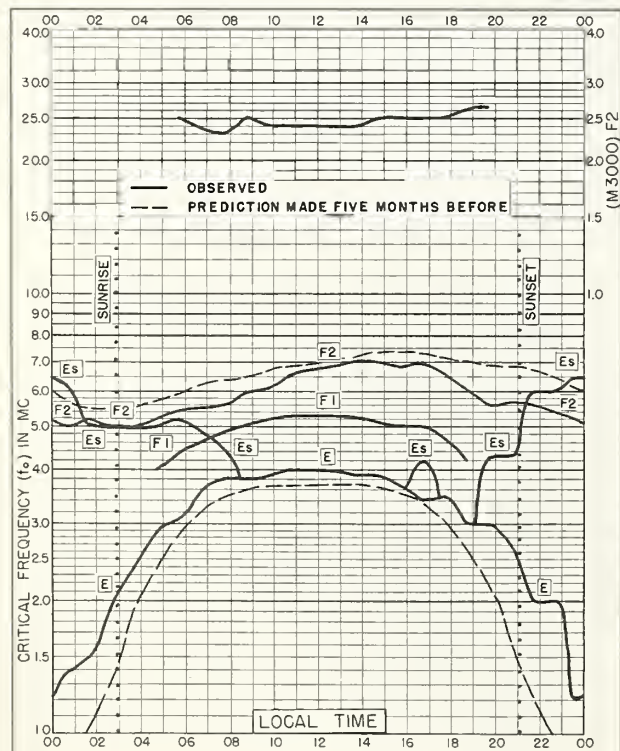


Fig. 59. CHURCHILL, CANADA
58.8°N, 94.2°W

JUNE 1957

NBS 503

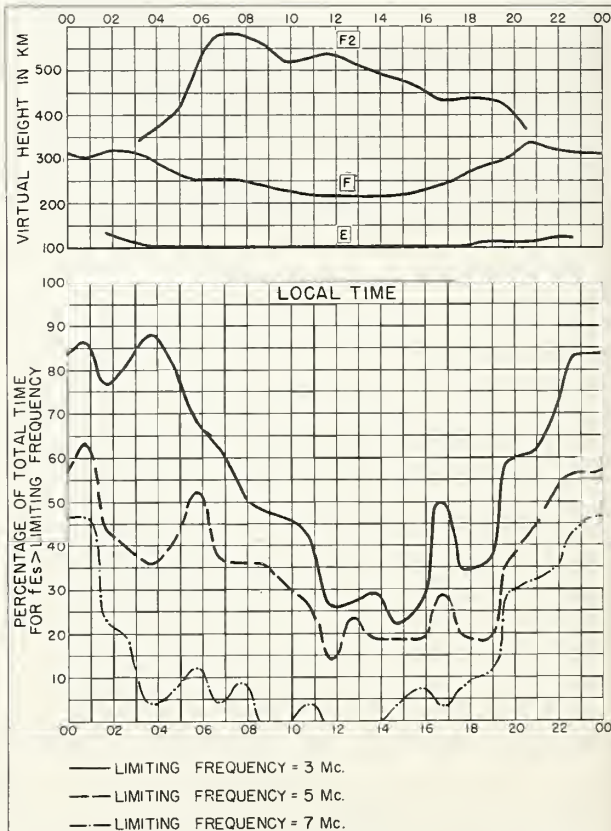


Fig. 60. CHURCHILL, CANADA

JUNE 1957

NBS 490

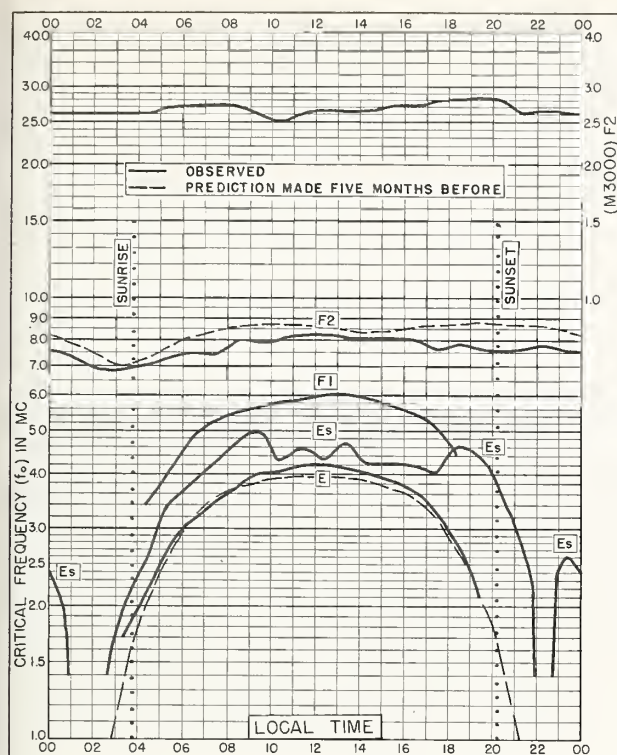


Fig. 61. De BILT, HOLLAND
52.1°N, 5.2°E

JUNE 1957

NBS 503

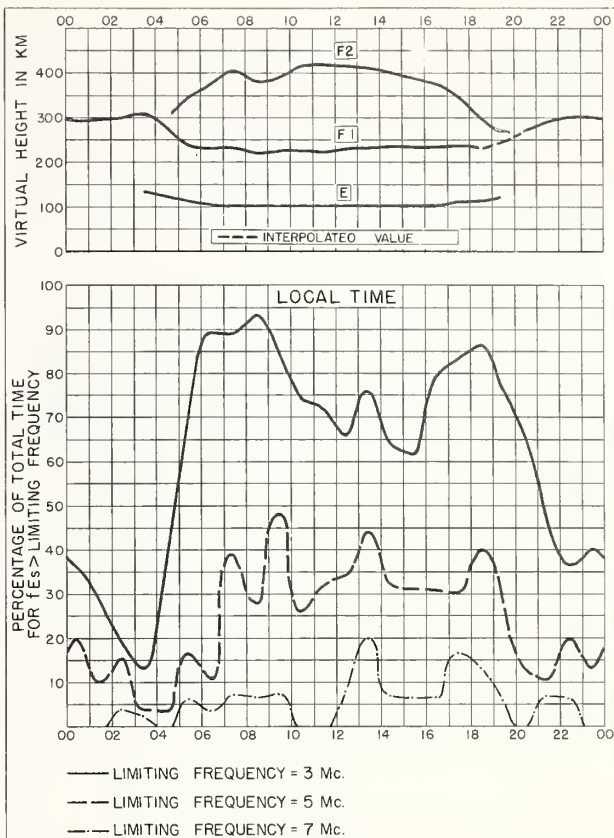


Fig. 62. De BILT, HOLLAND

JUNE 1957

NBS 490

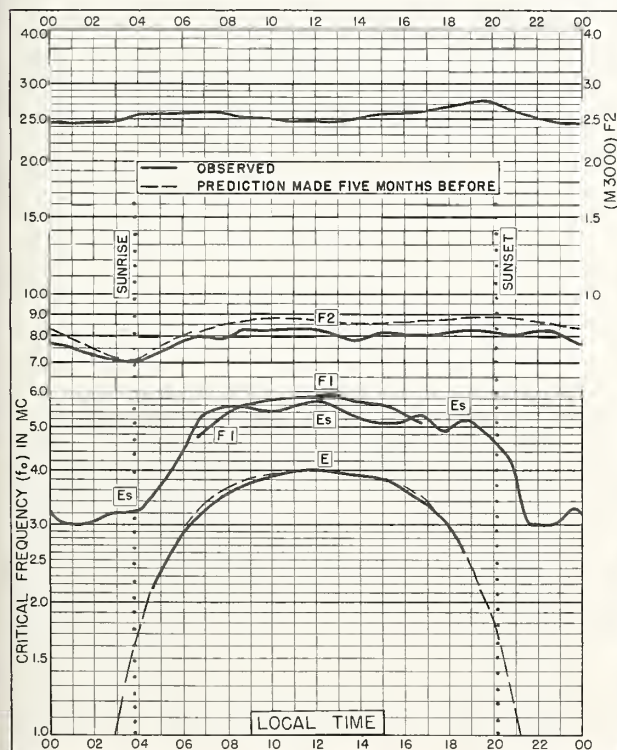


Fig. 63. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E

JUNE 1957

NBS 505

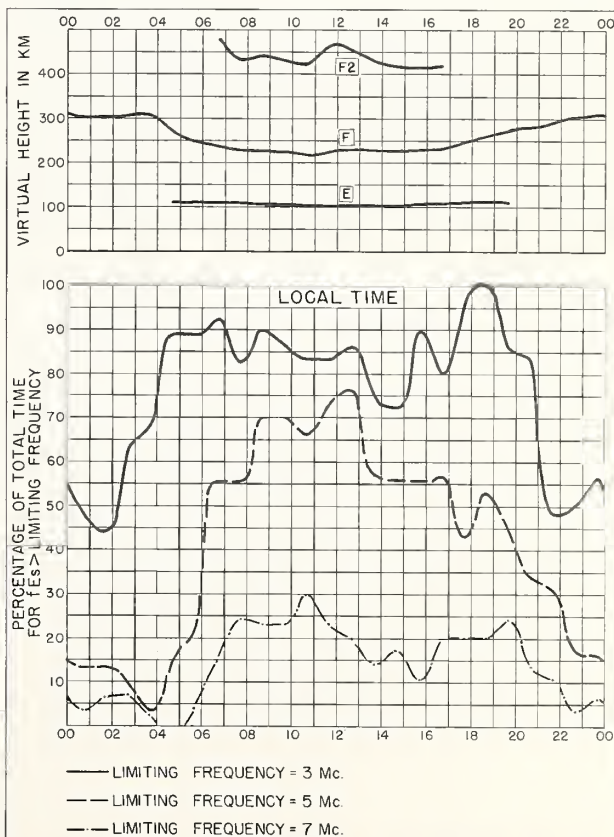


Fig. 64. LINDAU/HARZ, GERMANY

JUNE 1957

NBS 490

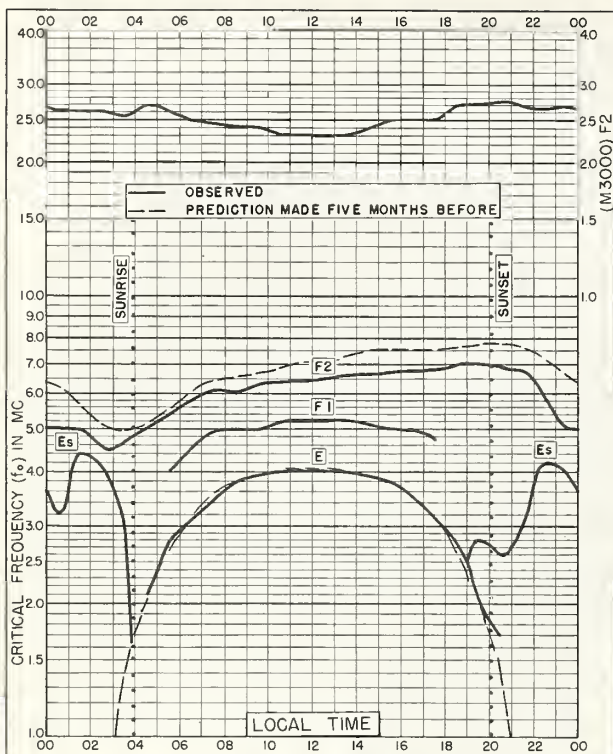


Fig. 65. WINNIPEG, CANADA
49.9°N, 97.4°W

JUNE 1957

NBS 503

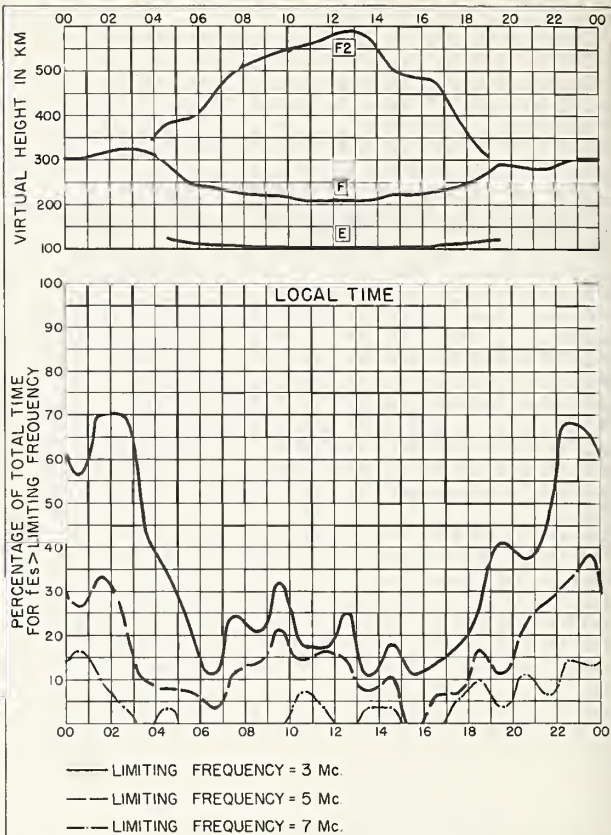


Fig. 66. WINNIPEG, CANADA

JUNE 1957

NBS 490

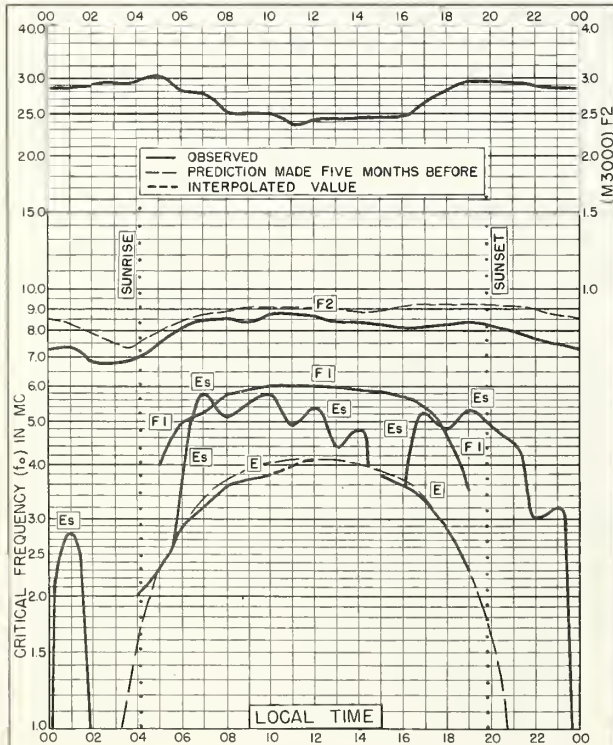


Fig. 67. BUDAPEST, HUNGARY
47.4°N, 19.2°E

JUNE 1957

NBS 503

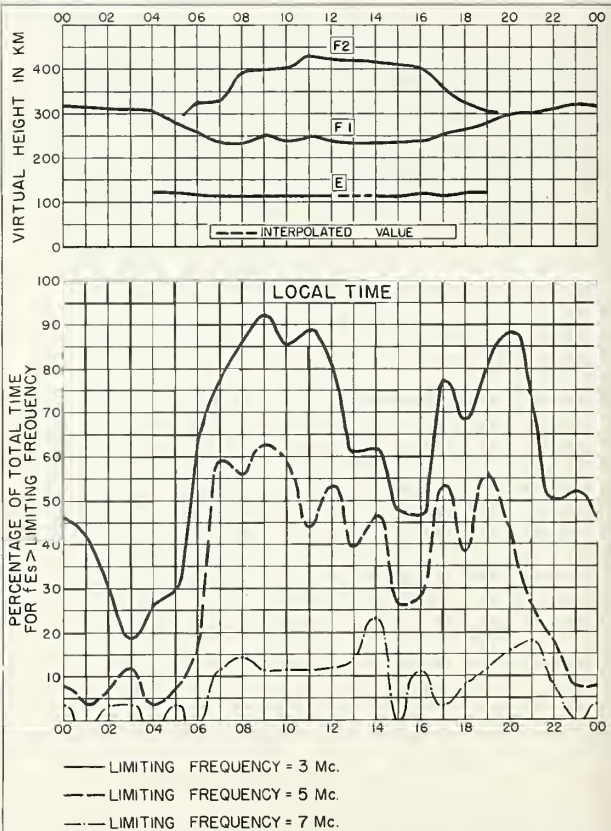


Fig. 68. BUDAPEST, HUNGARY

JUNE 1957

NBS 490

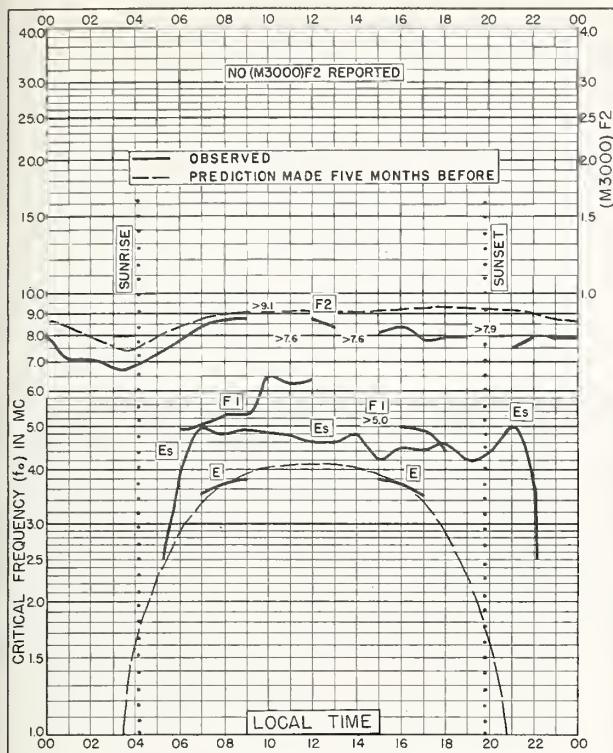


Fig. 69. GRAZ, AUSTRIA
47.1°N, 15.5°E

JUNE 1957

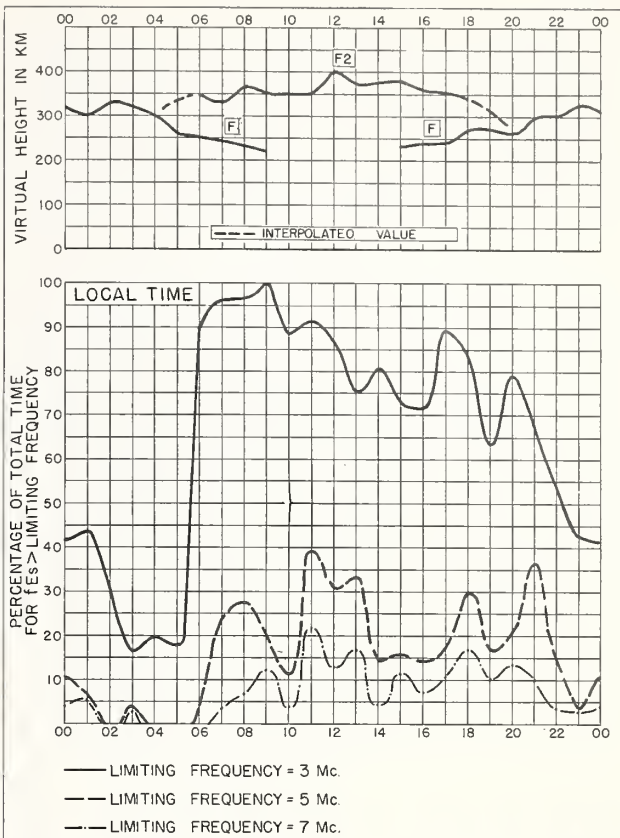


Fig. 70. GRAZ, AUSTRIA

JUNE 1957

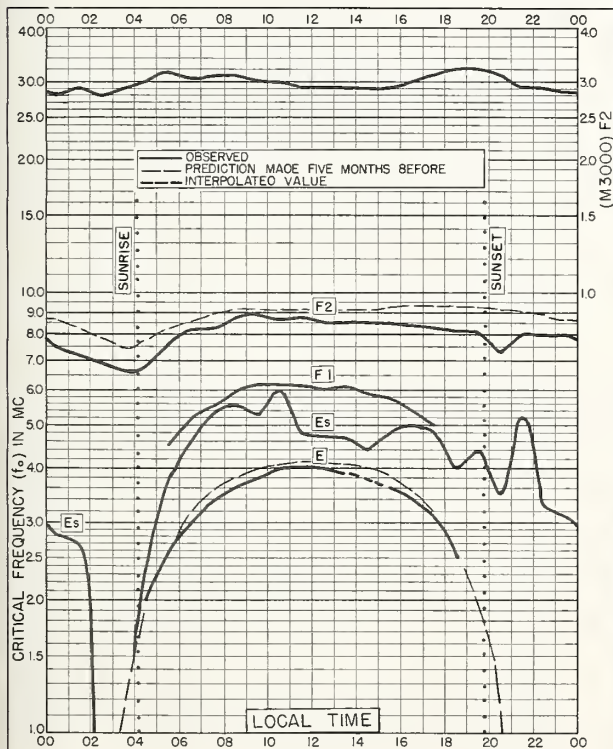


Fig. 71. SCHWARZENBURG, SWITZERLAND
46.8°N, 7.3°E

JUNE 1957

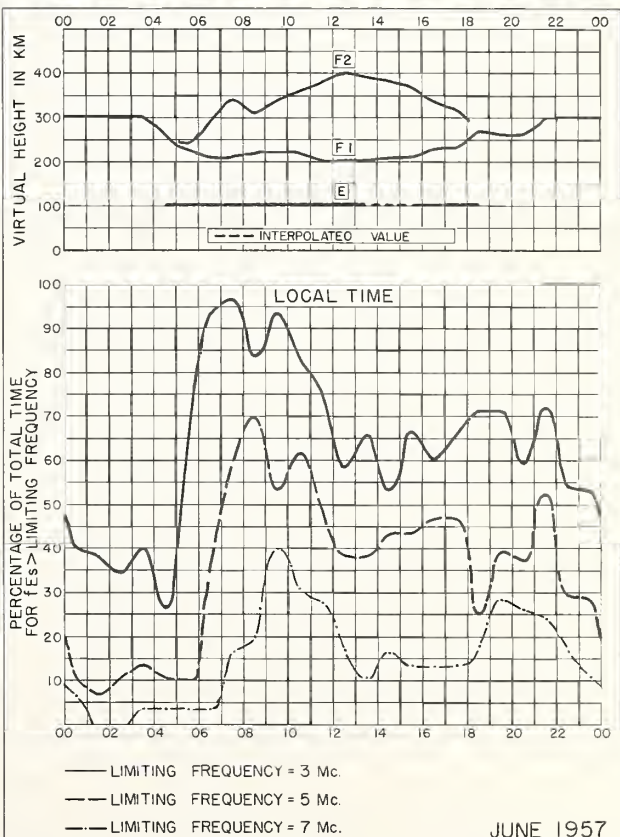


Fig. 72. SCHWARZENBURG, SWITZERLAND

JUNE 1957

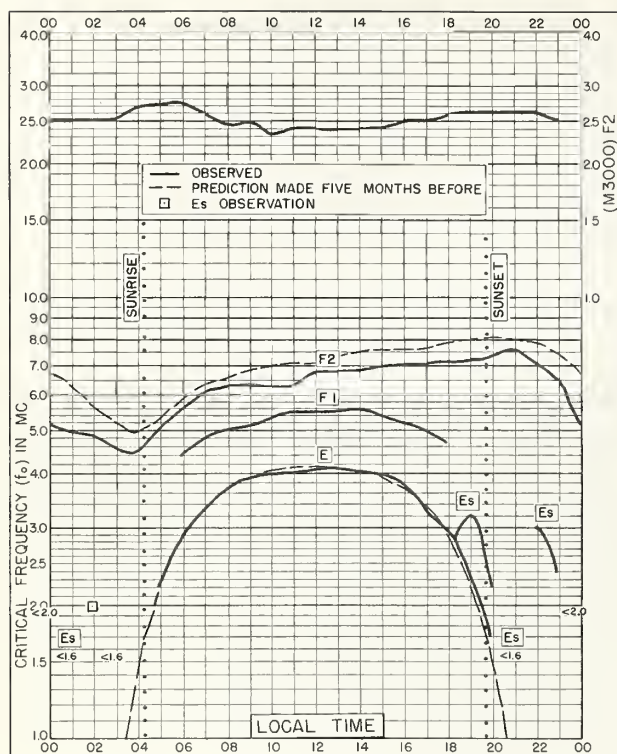


Fig. 73. OTTAWA, CANADA
45.4°N, 75.9°W

JUNE 1957

NBS 503

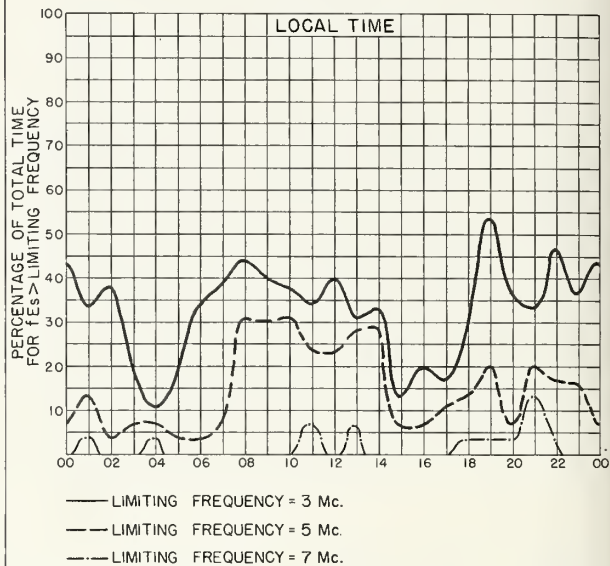
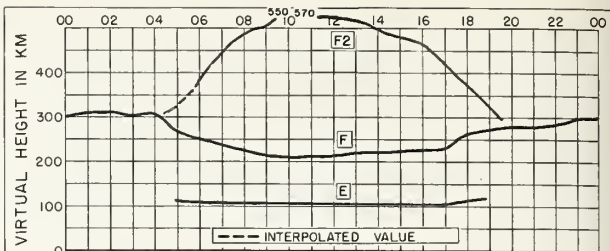


Fig. 74. OTTAWA, CANADA

JUNE 1957

NBS 490

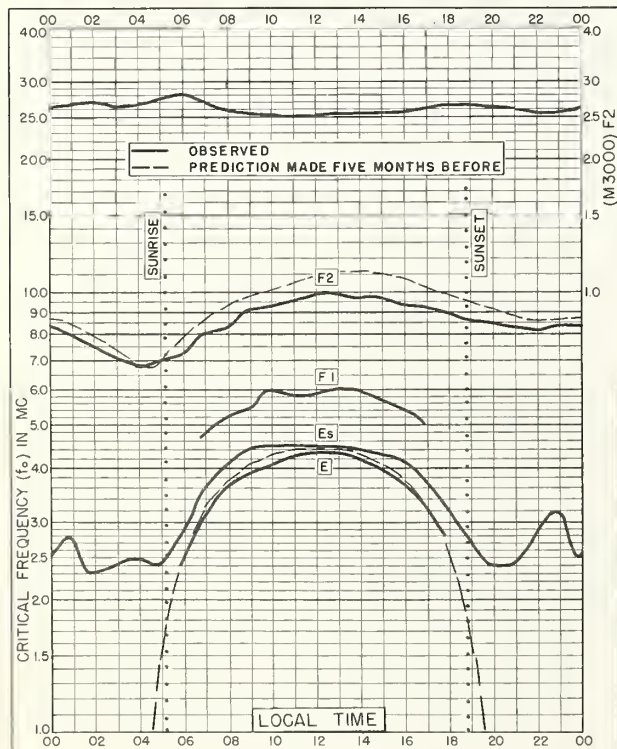


Fig. 75. GRAND BAHAMA I.
26.6°N, 78.2°W

JUNE 1957

NBS 503

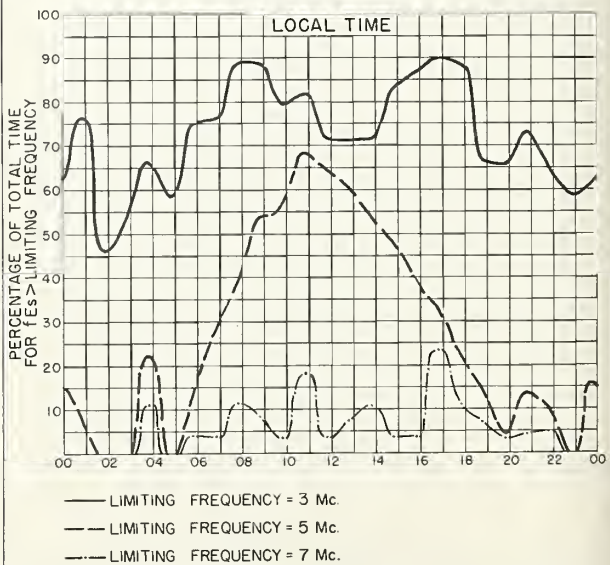
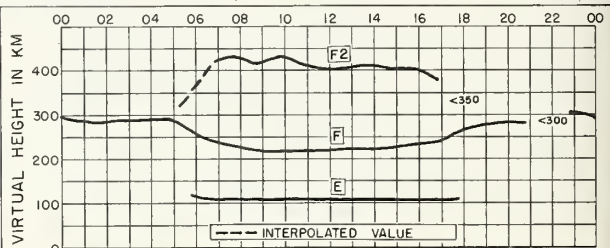


Fig. 76. GRAND BAHAMA I.

JUNE 1957

NBS 490

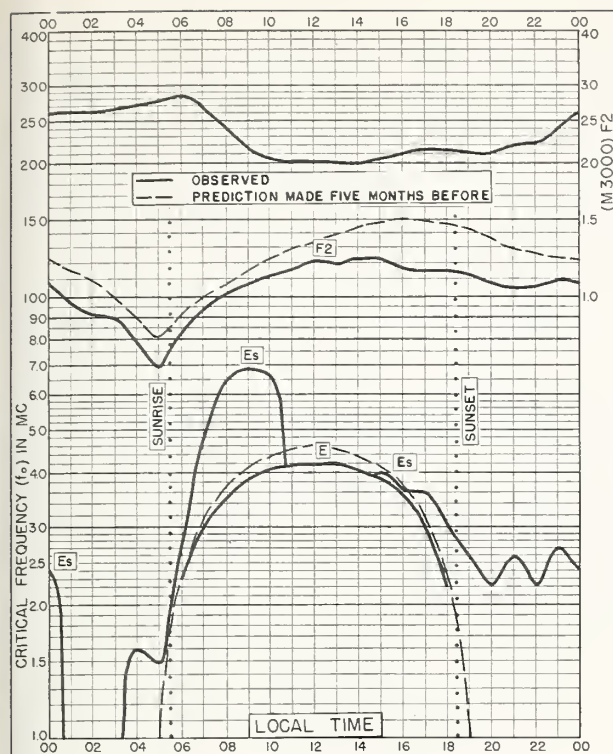


Fig. 77. BAGUIO, P. I.
16.4°N, 120.6°E

JUNE 1957

NBS 503

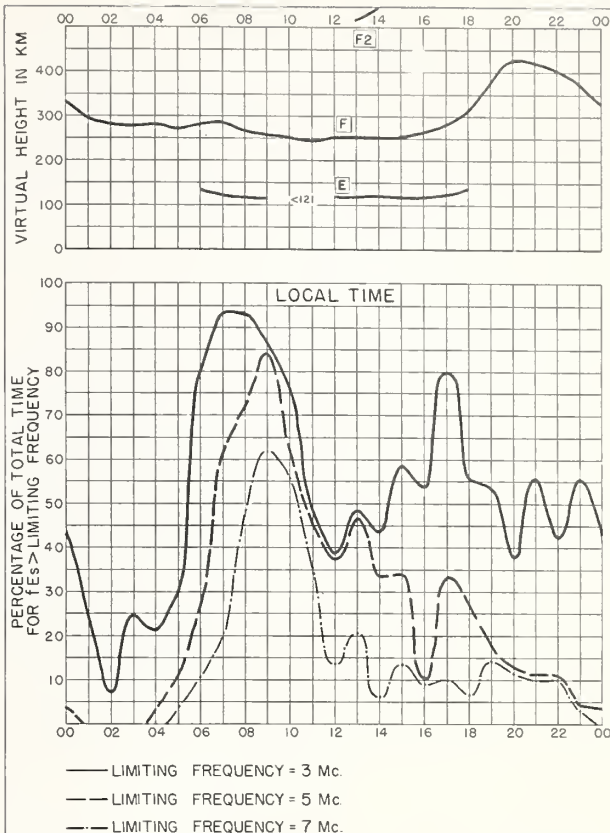


Fig. 78. BAGUIO, P. I.

JUNE 1957

NBS 490

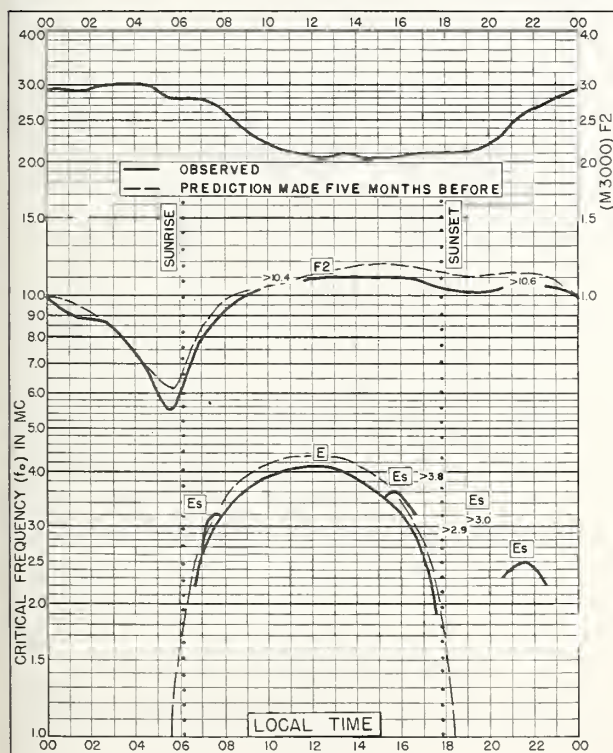


Fig. 79. TALARA, PERU
4.6°S, 81.3°W

JUNE 1957

NBS 503

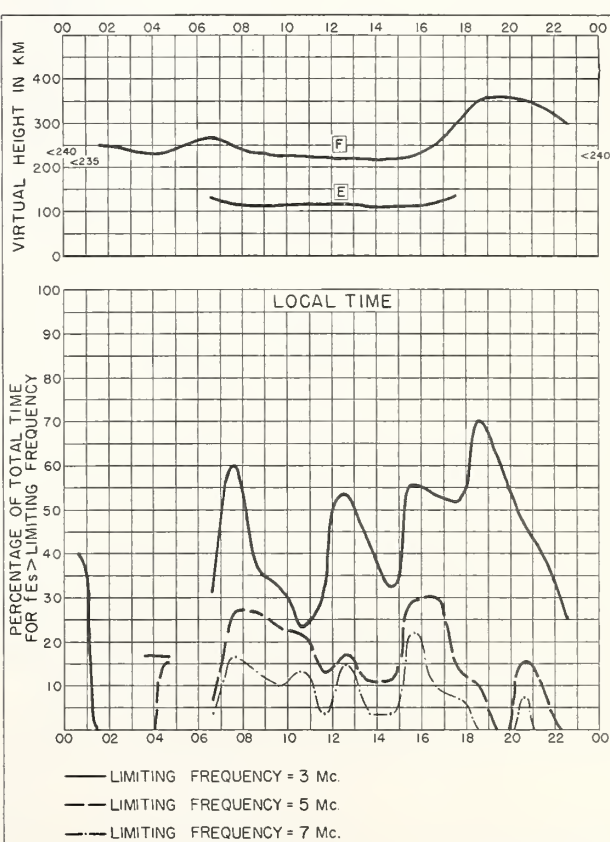


Fig. 80. TALARA, PERU

JUNE 1957

NBS 490

NBS 490

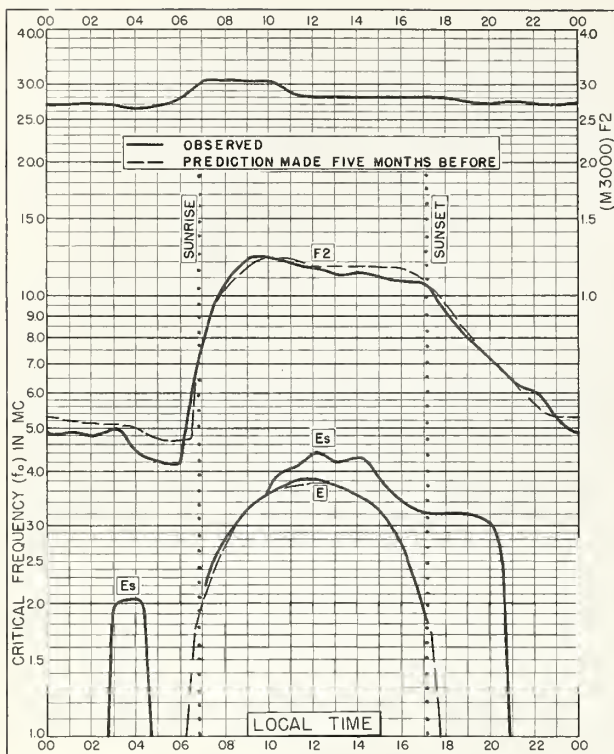


Fig. 81. BRISBANE, AUSTRALIA
27.5°S, 152.9°E

JUNE 1957

NBS 503

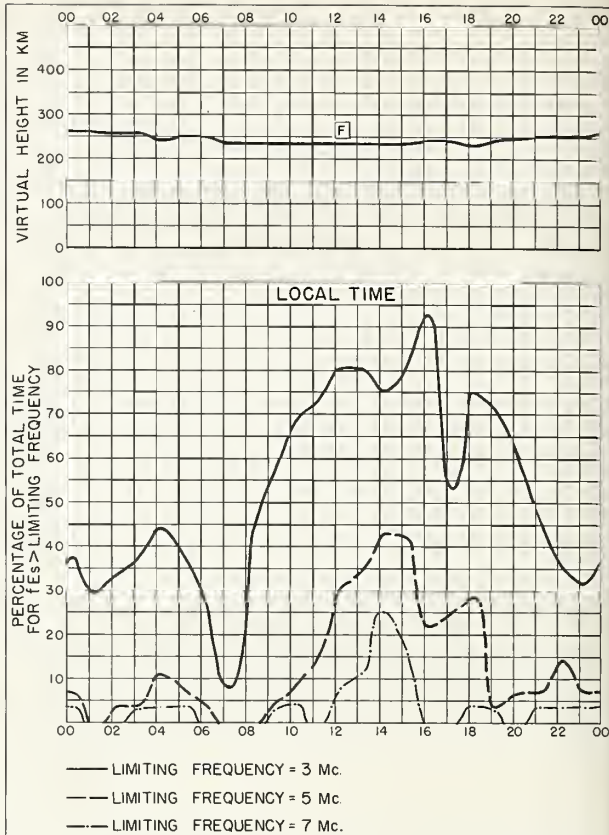


Fig. 82. BRISBANE, AUSTRALIA

JUNE 1957

NBS 490

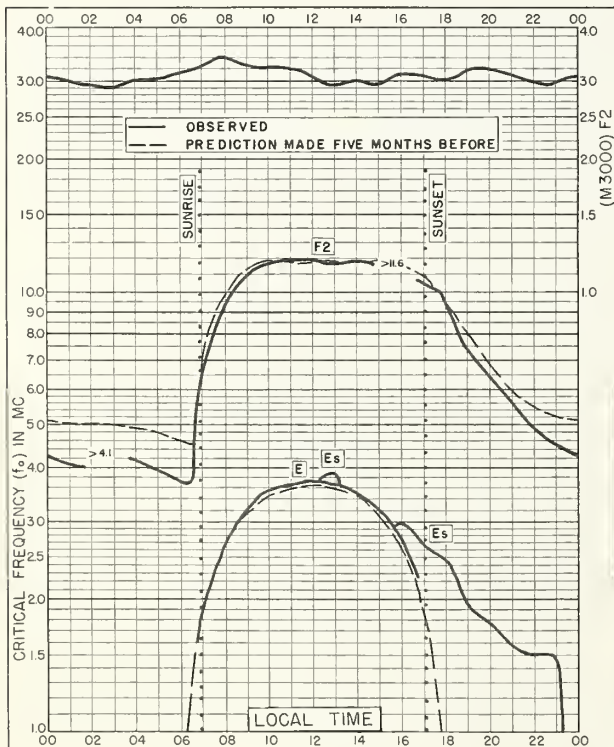


Fig. 83. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E

JUNE 1957

NBS 503

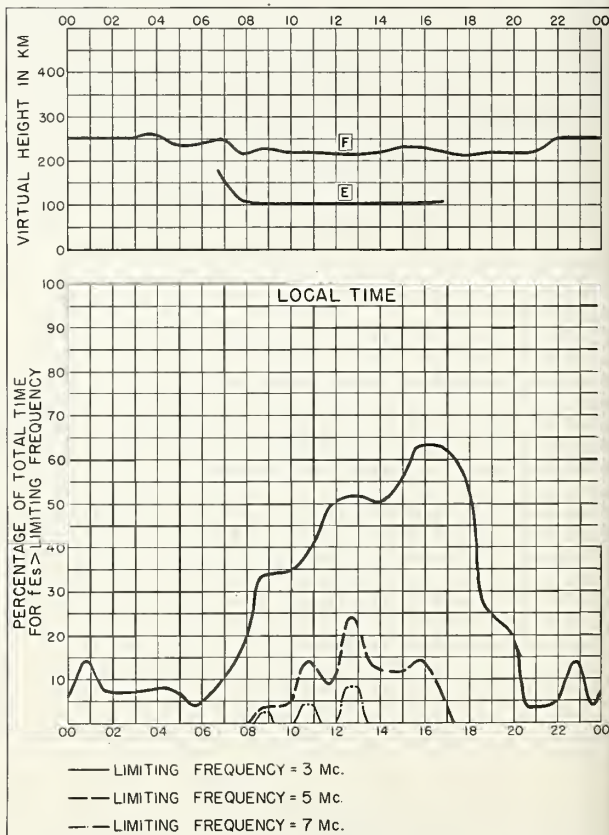


Fig. 84. WATHEROO, W. AUSTRALIA

JUNE 1957

NBS 490

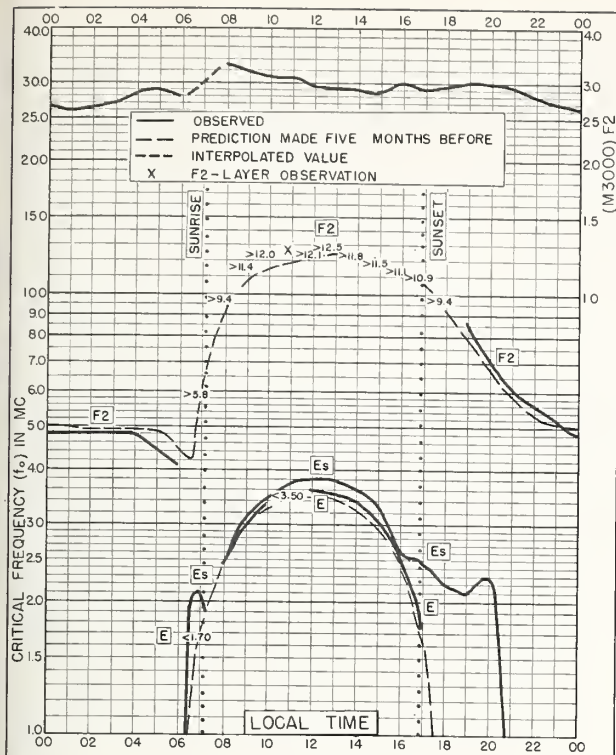
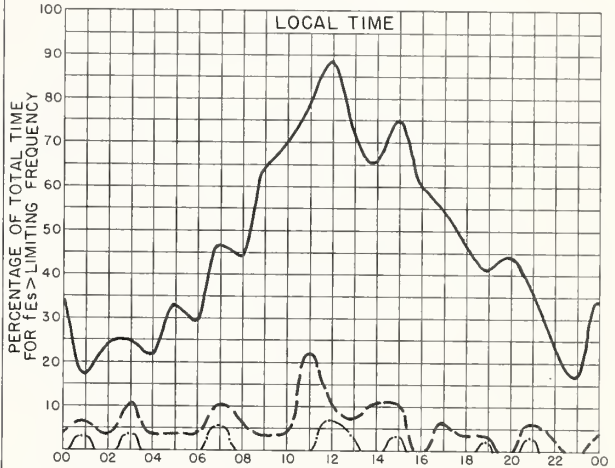
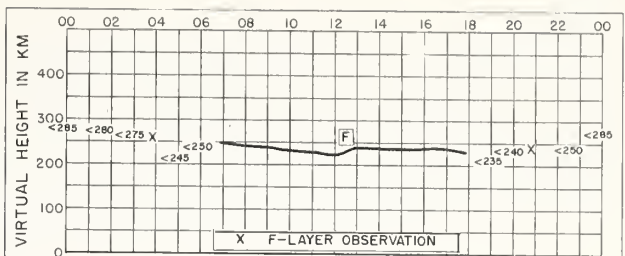


Fig. 85. CANBERRA, AUSTRALIA
35.3°S, 149.0°E

JUNE 1957



— LIMITING FREQUENCY = 3 Mc.
— LIMITING FREQUENCY = 5 Mc.
— LIMITING FREQUENCY = 7 Mc.

Fig. 86. CANBERRA, AUSTRALIA

JUNE 1957

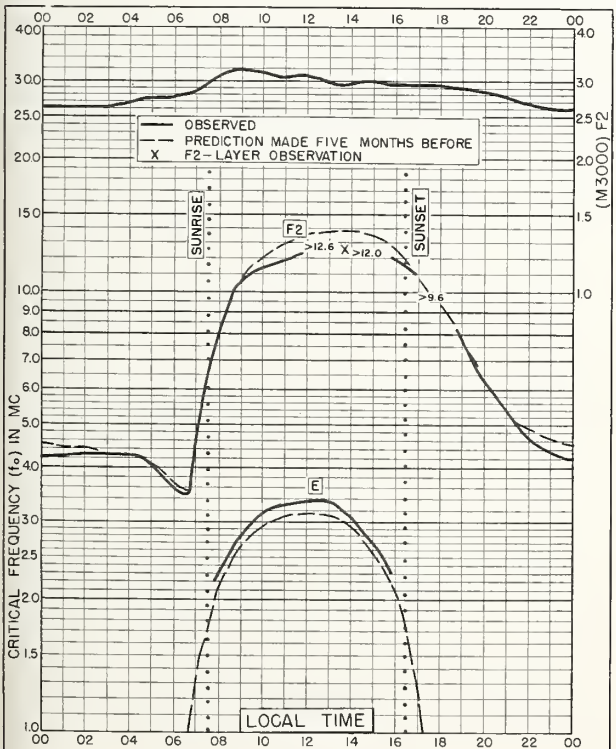
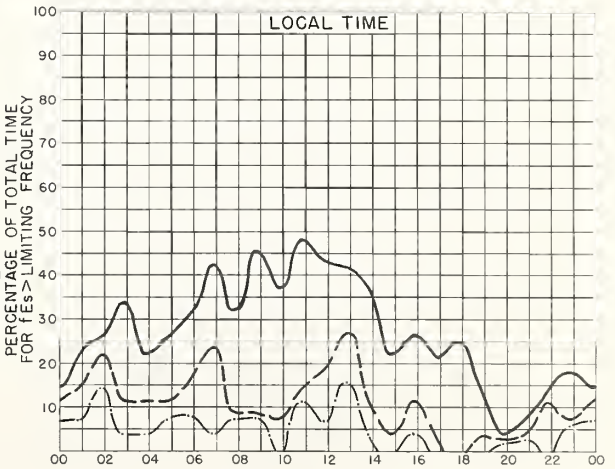
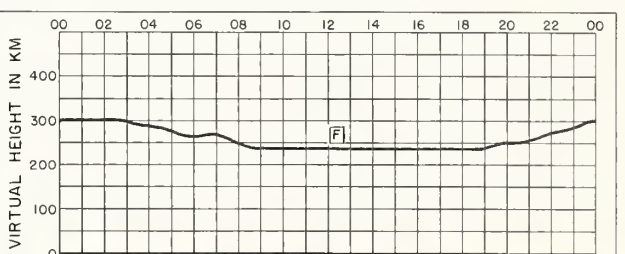


Fig. 87. HOBART, TASMANIA
42.9°S, 147.2°E

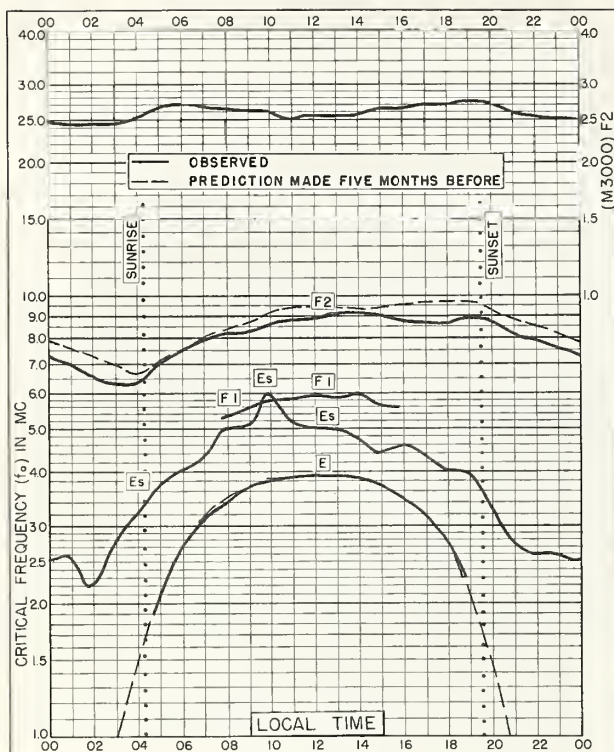
JUNE 1957



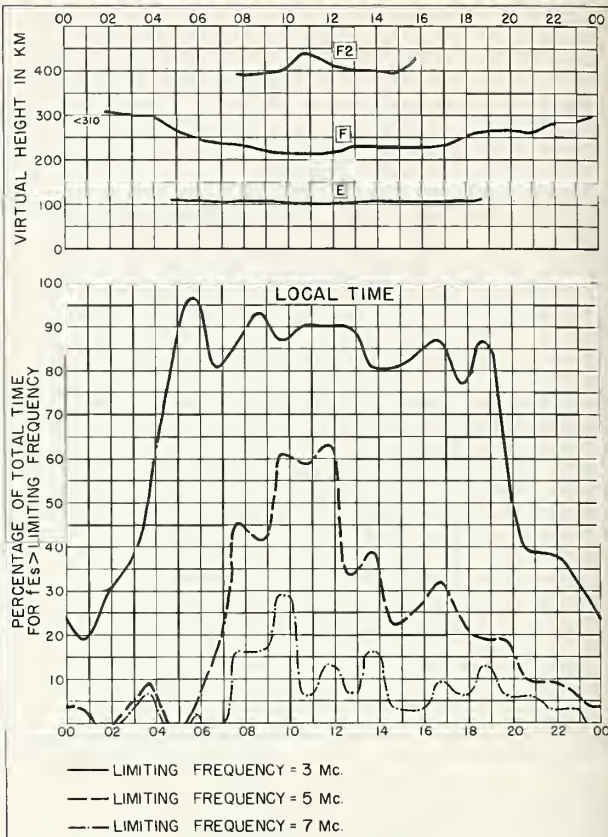
— LIMITING FREQUENCY = 3 Mc.
— LIMITING FREQUENCY = 5 Mc.
— LIMITING FREQUENCY = 7 Mc.

Fig. 88. HOBART, TASMANIA

JUNE 1957

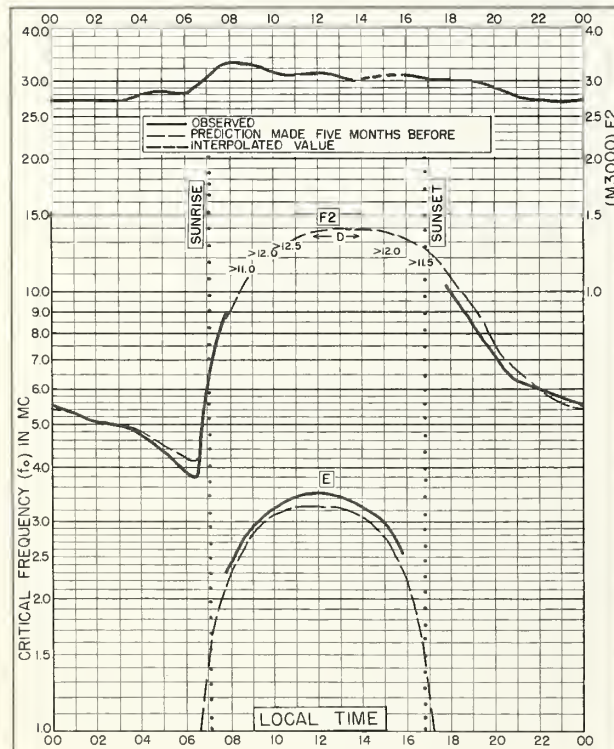


NBS 503

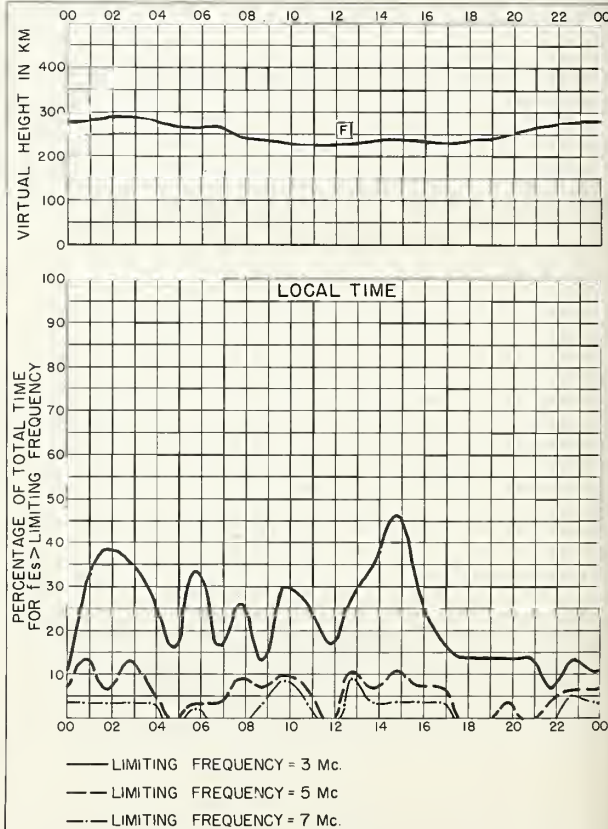


Commerce-Bastardier-Pfeiffer, Göttingen

NBS 490



NBS 503



Commerce-Bastardier-Pfeiffer, Göttingen

NBS 490

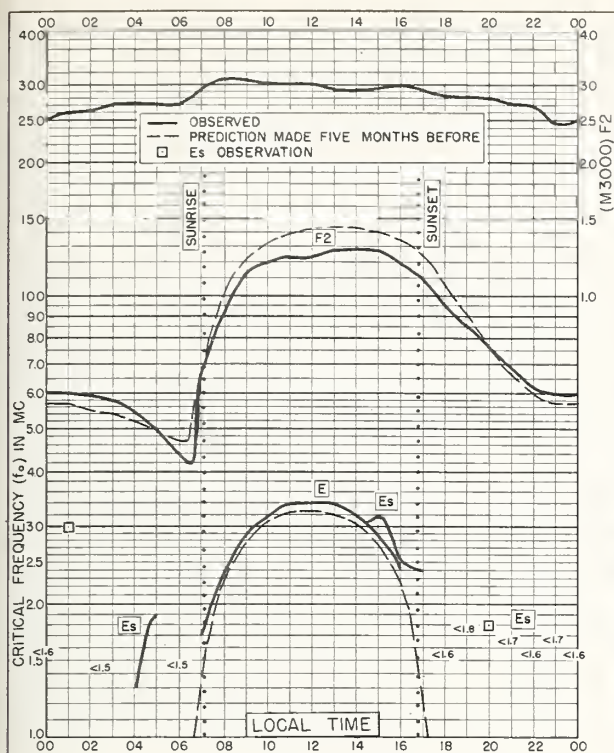


Fig. 93. CHRISTCHURCH, NEW ZEALAND
43.6°S, 172.8°E MAY 1957

NBS 503

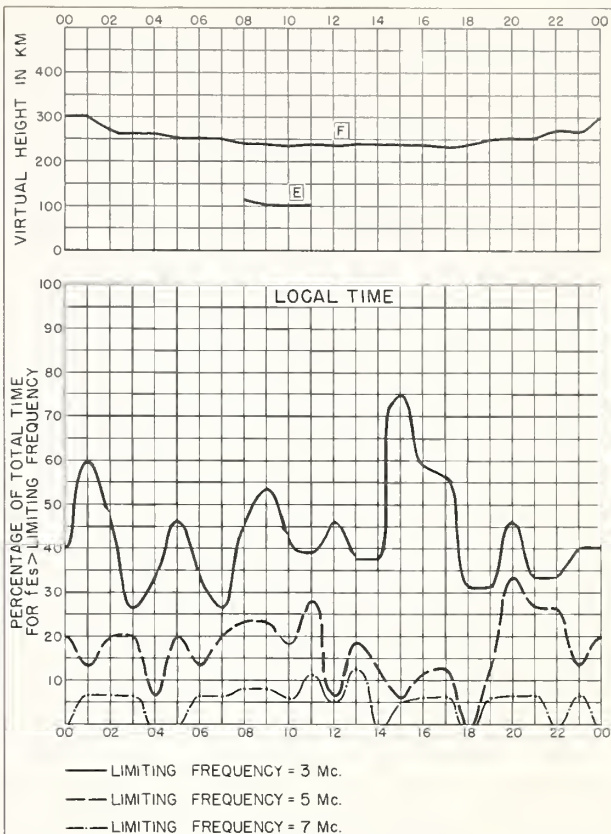


Fig. 94. CHRISTCHURCH, NEW ZEALAND MAY 1957

Communications-Boulder, Colo.

NBS 490

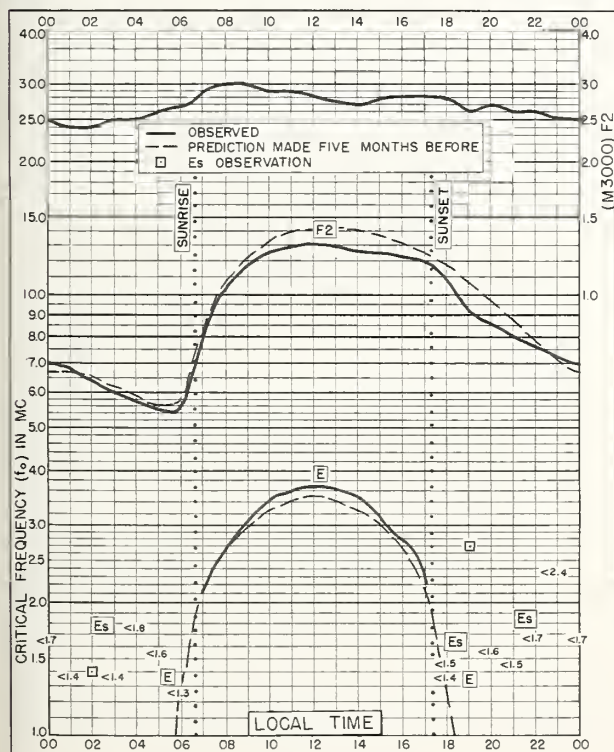


Fig. 95. CHRISTCHURCH, NEW ZEALAND
43.6°S, 172.8°E APRIL 1957

NBS 503

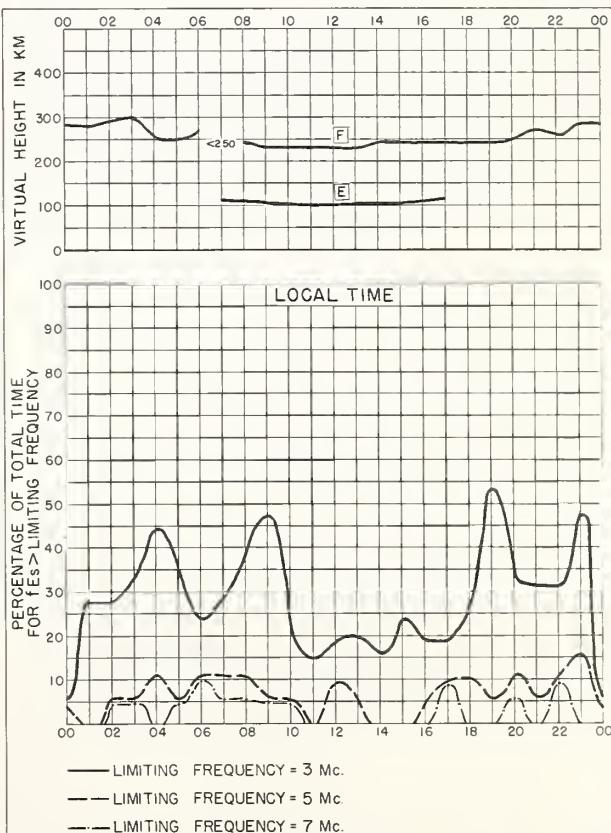


Fig. 96. CHRISTCHURCH, NEW ZEALAND APRIL 1957

Communications-Boulder, Colo.

NBS 490

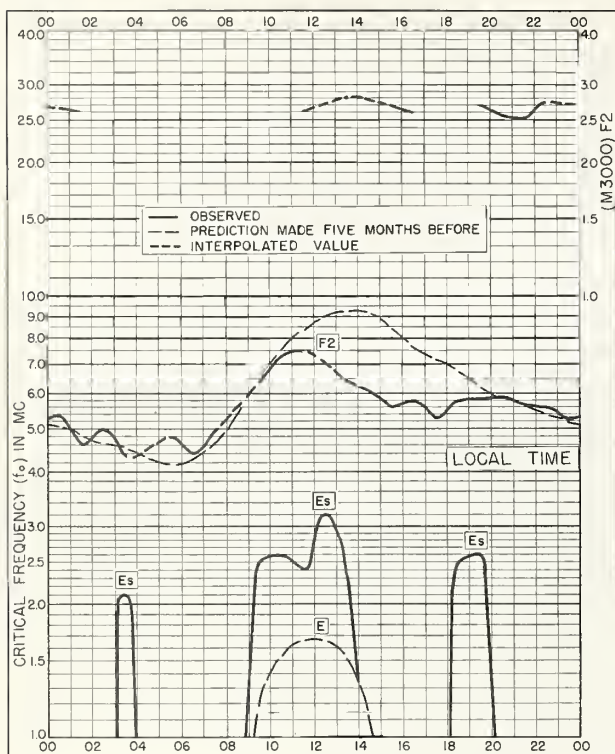


Fig. 97. GODHAVN, GREENLAND
69.2°N, 53.5°W DECEMBER 1956

NBS 503

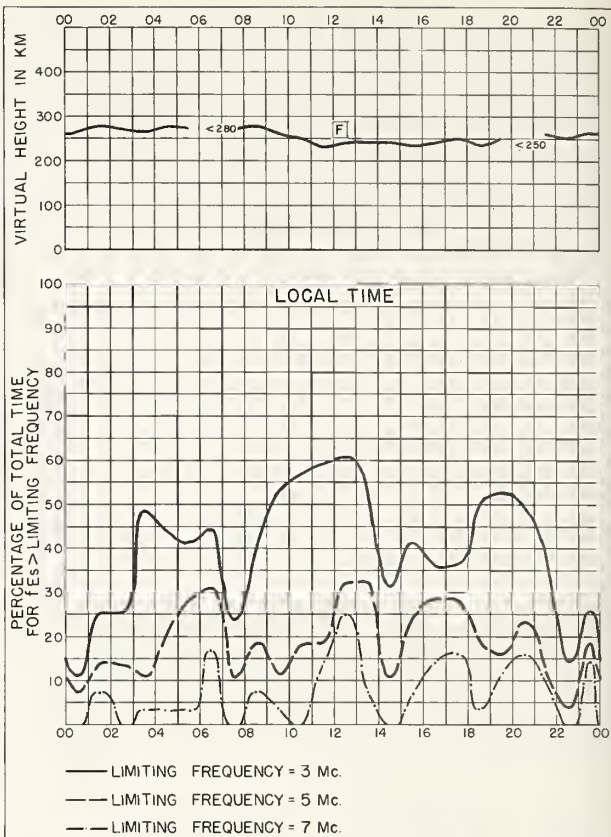


Fig. 98. GODHAVN, GREENLAND DECEMBER 1956

NBS 490

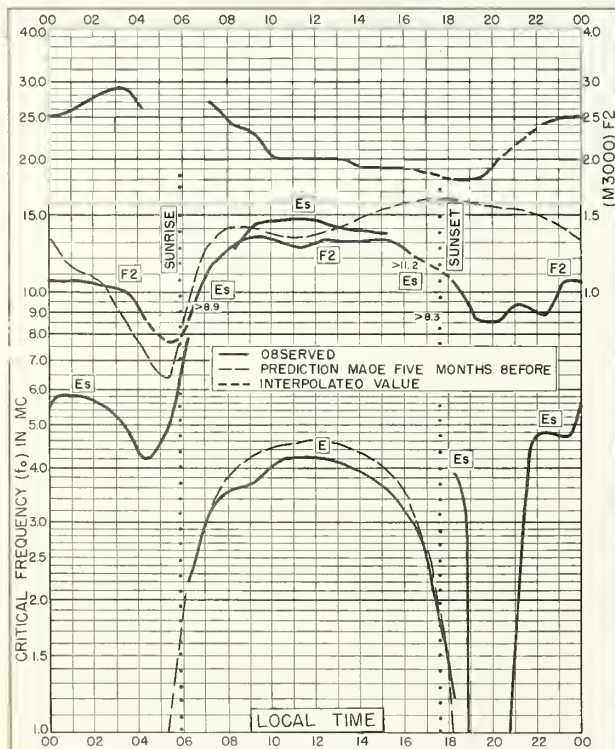


Fig. 99. IBADAN, NIGERIA
7.4°N, 4.0°E NOVEMBER 1956

NBS 503

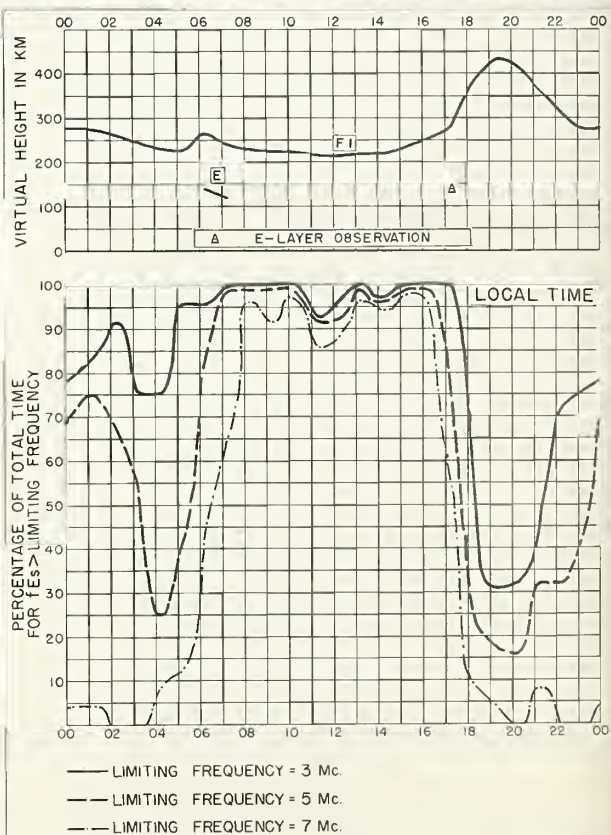


Fig. 100. IBADAN, NIGERIA NOVEMBER 1956

NBS 490

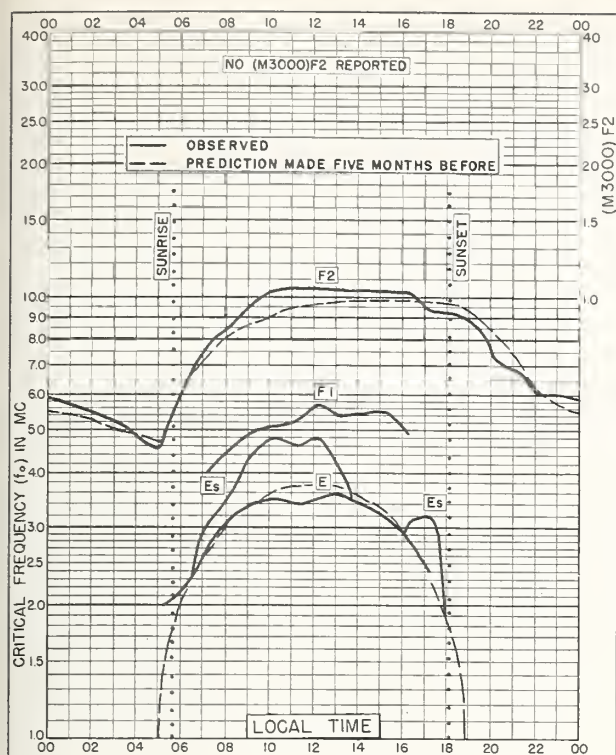


Fig. 101. BUDAPEST, HUNGARY
47.4°N, 19.2°E
SEPTEMBER 1956

NBS 503

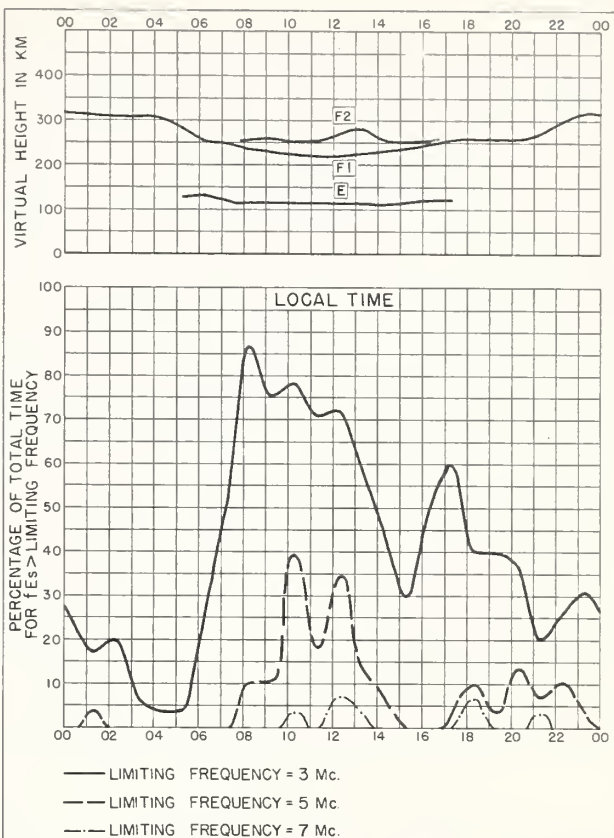


Fig. 102. BUDAPEST, HUNGARY
SEPTEMBER 1956

Compu-va-Boulder, Boulder, Colo.

NBS 490

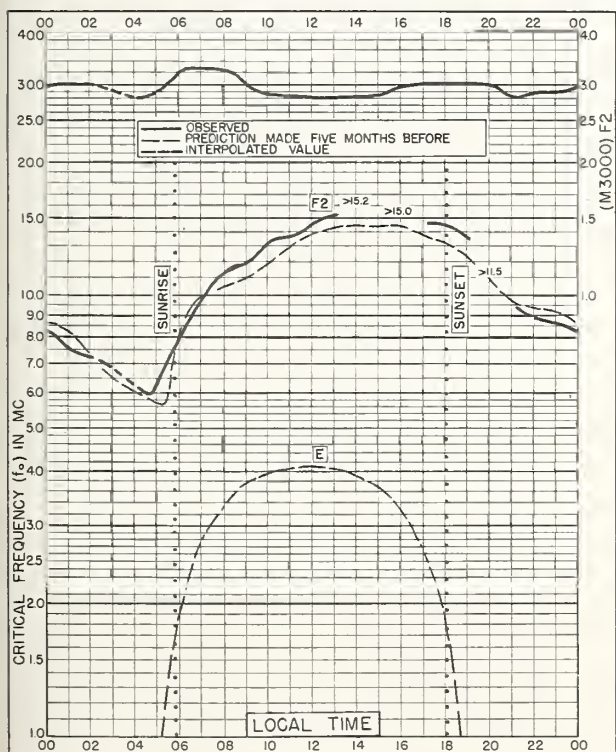


Fig. 103. DELHI, INDIA
28.6°N, 77.1°E
SEPTEMBER 1956

NBS 503

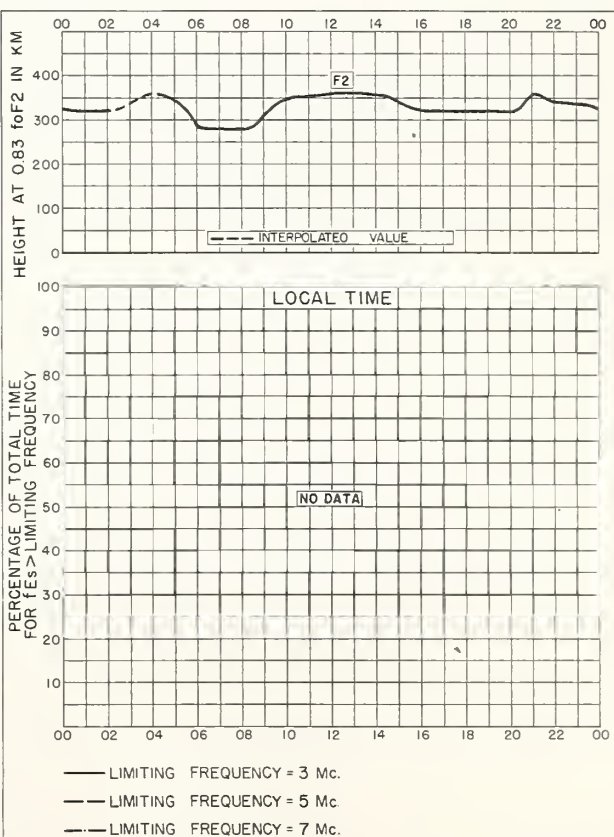


Fig. 104. DELHI, INDIA
SEPTEMBER 1956

Compu-va-Boulder, Boulder, Colo.

NBS 490

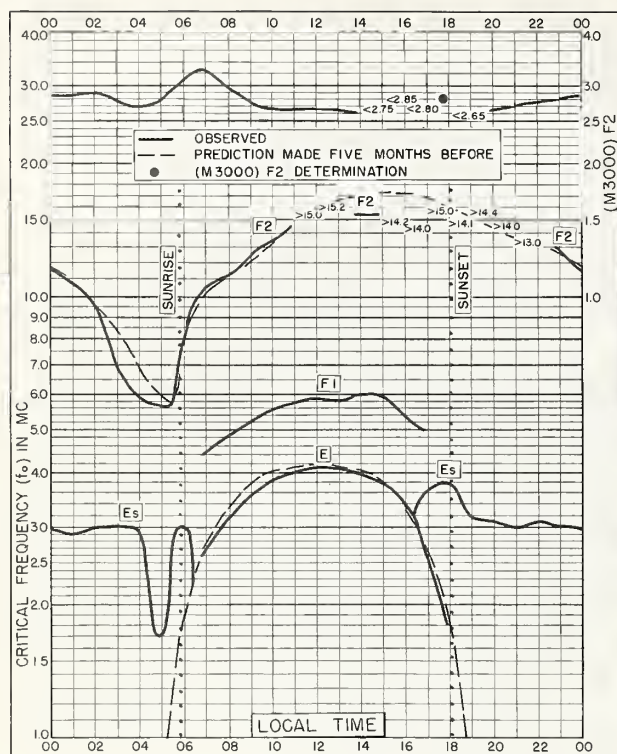


Fig. 105. AHMEDABAD, INDIA

23.0°N, 72.6°E

SEPTEMBER 1956

NBS 503

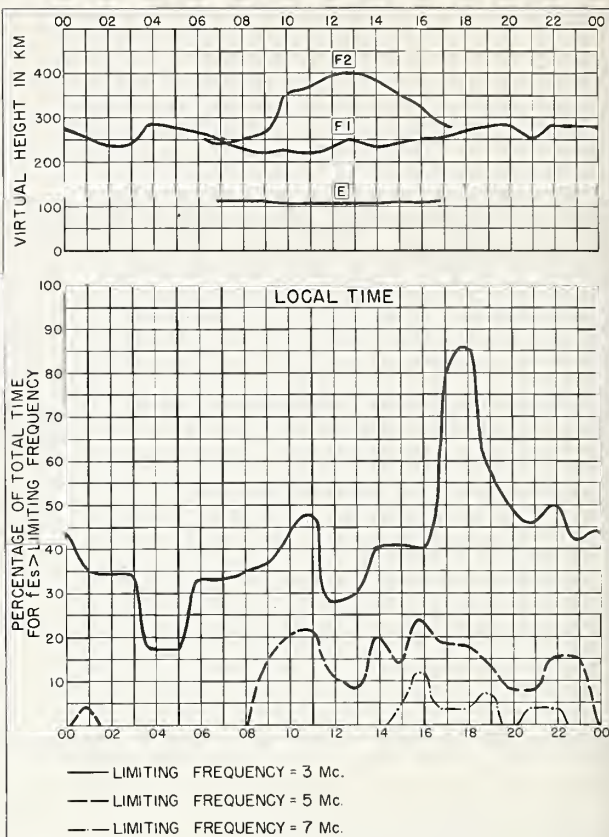


Fig. 106. AHMEDABAD, INDIA

SEPTEMBER 1956

NBS 490

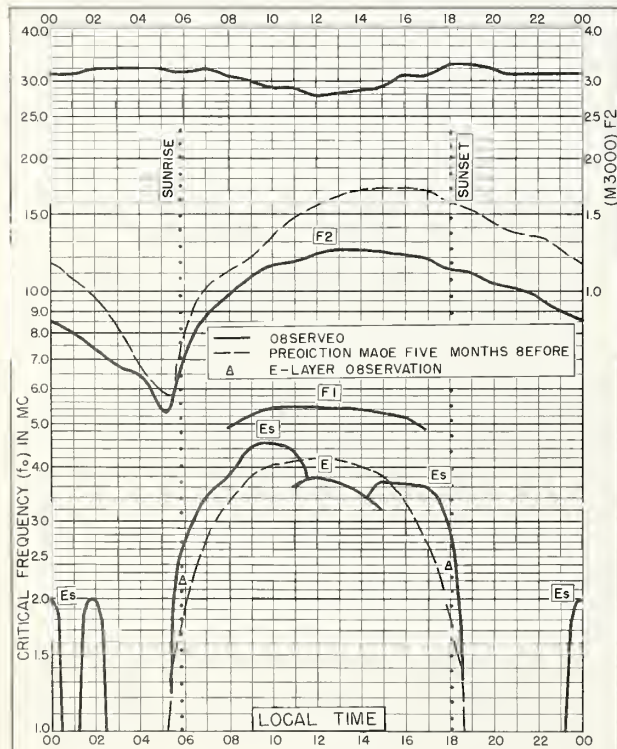


Fig. 107. CALCUTTA, INDIA

22.9°N, 88.5°E

SEPTEMBER 1956

NBS 503

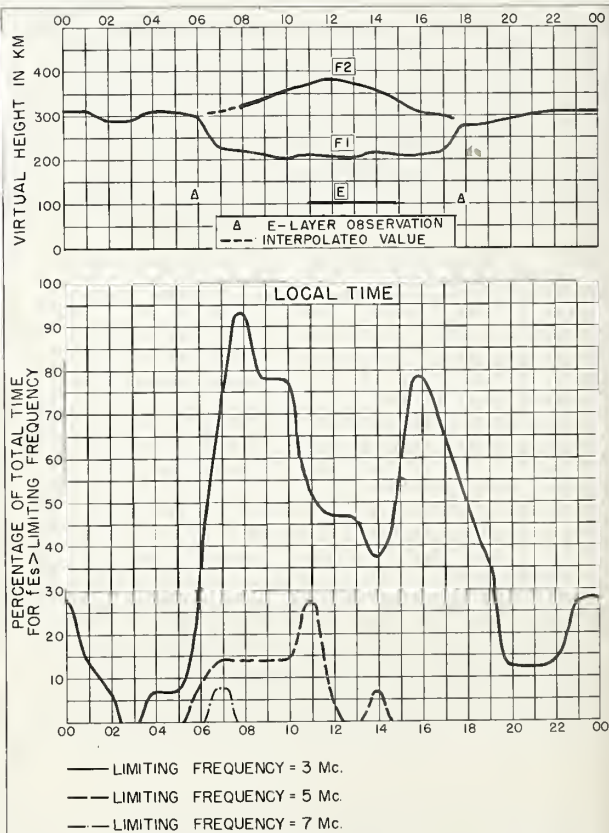
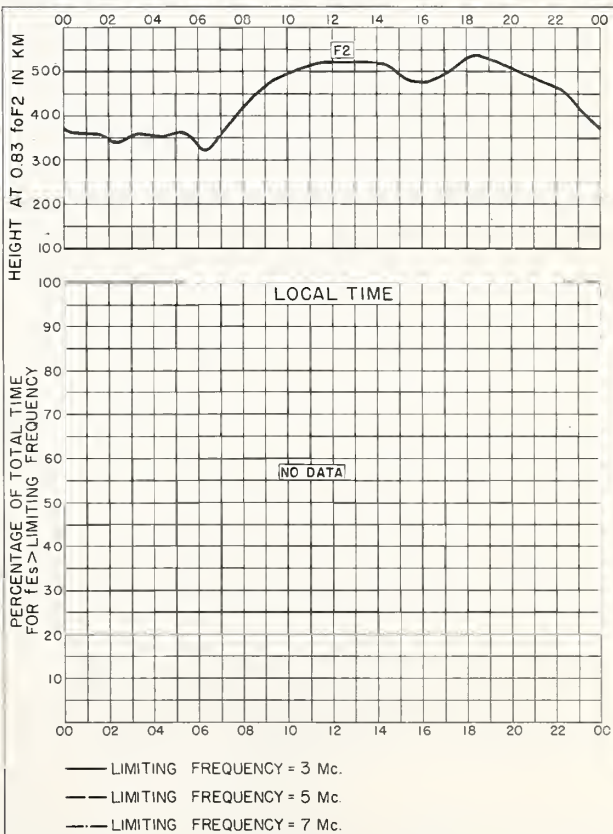
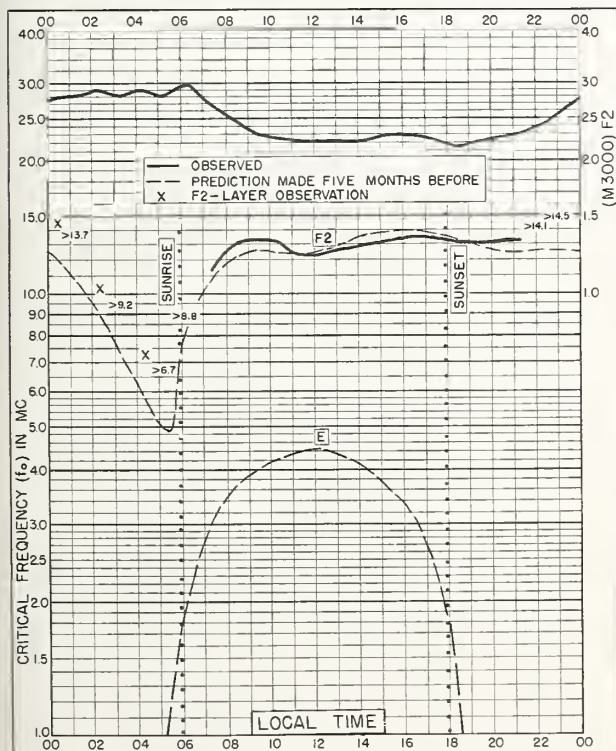
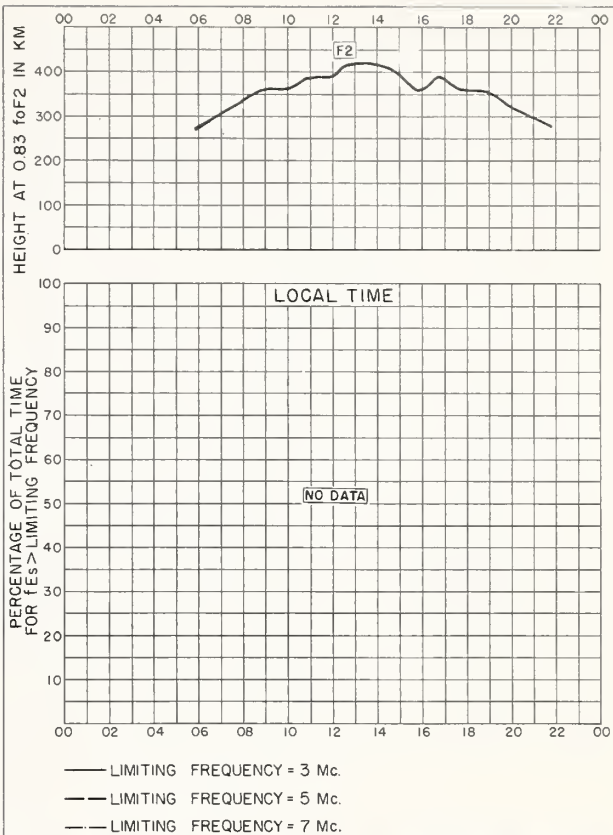
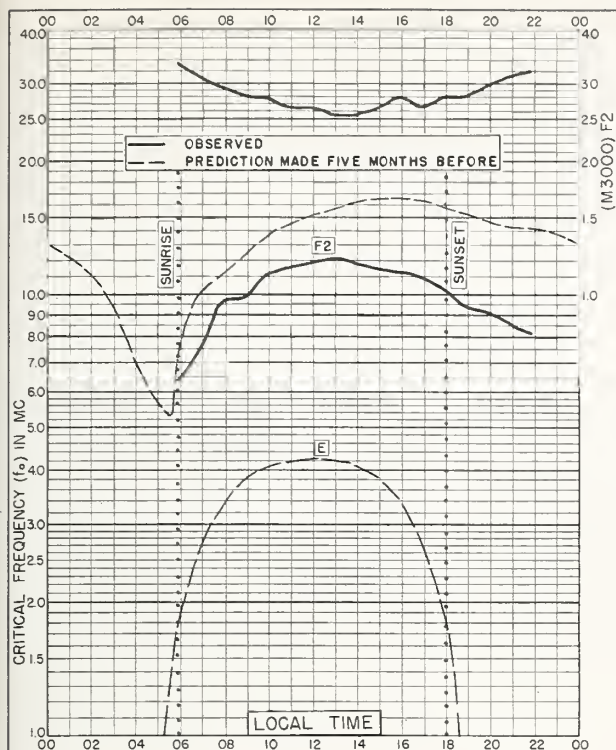


Fig. 108. CALCUTTA, INDIA

SEPTEMBER 1956

NBS 490



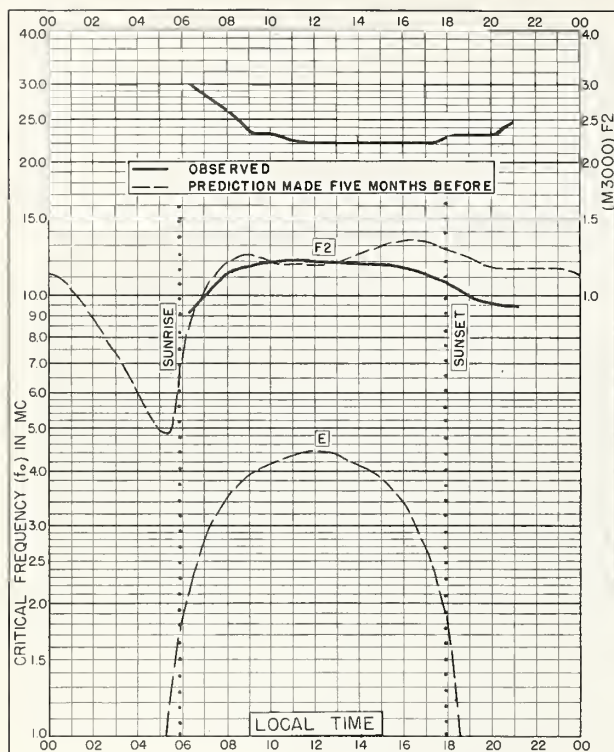


Fig. 113. TIRUCHY, INDIA
10.8°N, 78.8°E

SEPTEMBER 1956

NBS 503

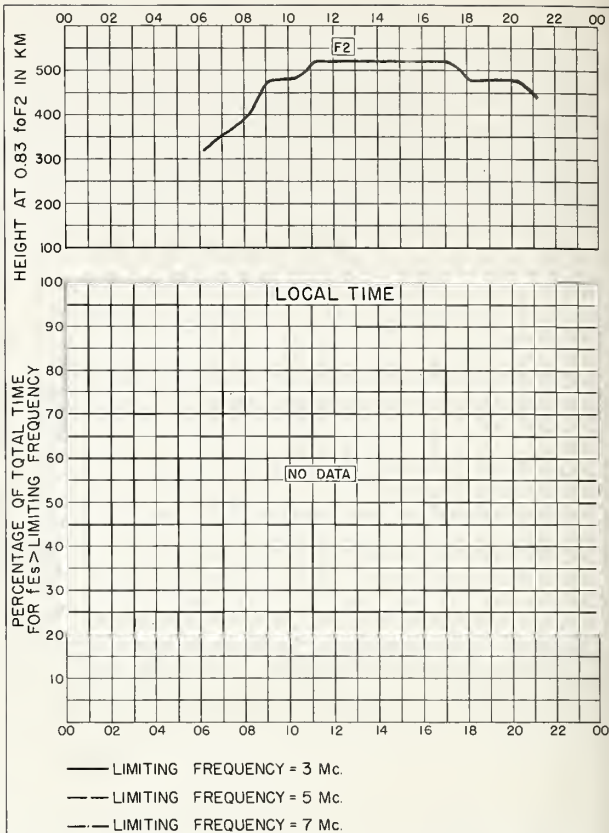


Fig. 114. TIRUCHY, INDIA

SEPTEMBER 1956

NBS 490

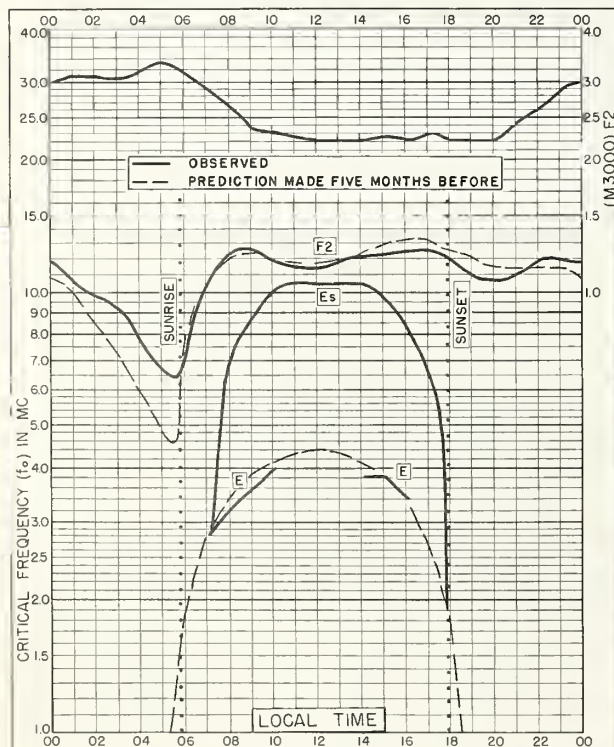


Fig. 115. KODAIKANAL, INDIA
10.2°N, 77.5°E

SEPTEMBER 1956

NBS 503

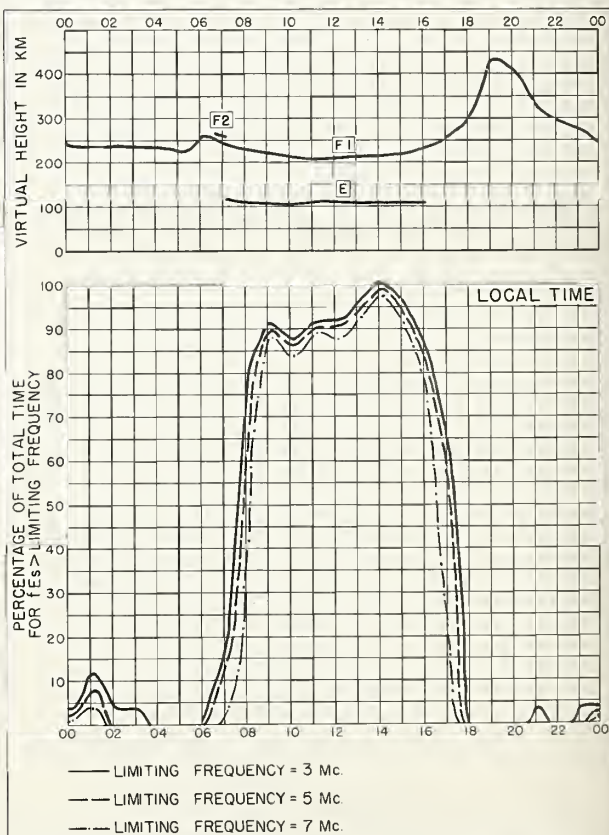


Fig. 116. KODAIKANAL, INDIA

SEPTEMBER 1956

NBS 490

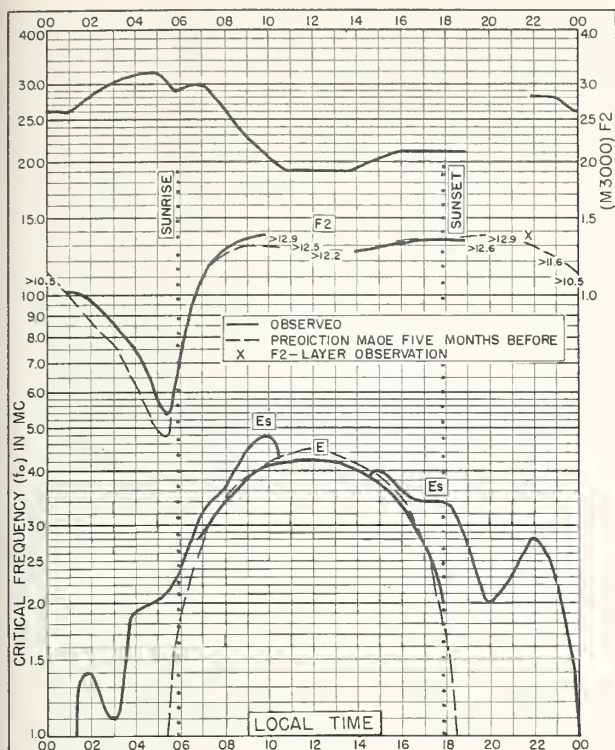


Fig. 117. SINGAPORE, BRITISH MALAYA
1.3°N, 103.8°E
SEPTEMBER 1956

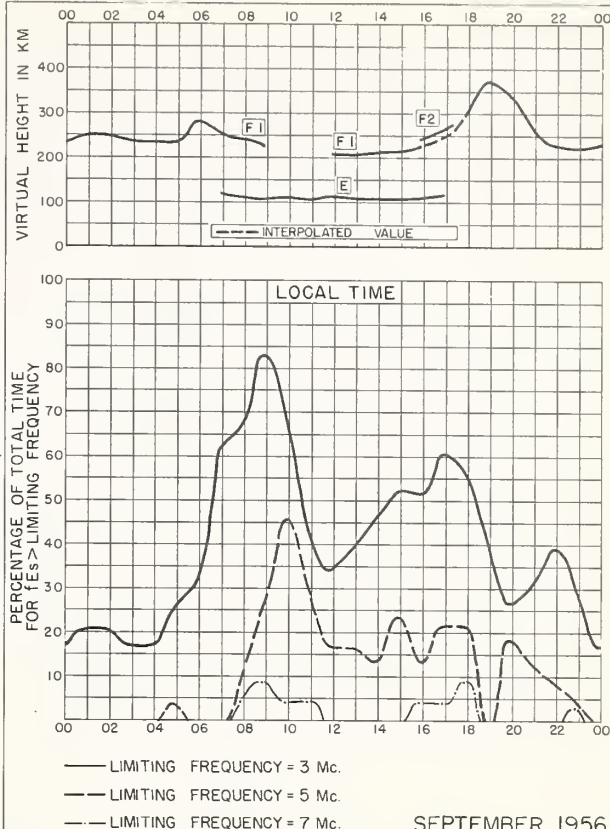


Fig. 118. SINGAPORE, BRITISH MALAYA

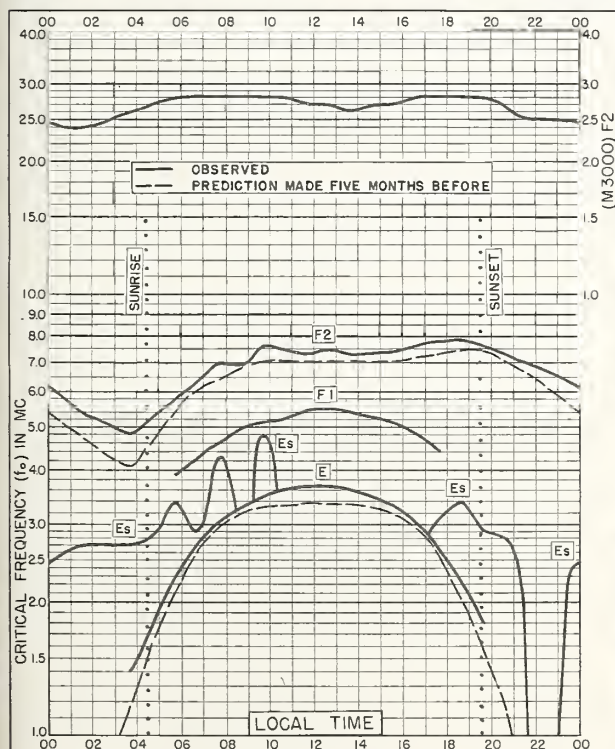


Fig. 119. INVERNESS, SCOTLAND
57.4°N, 4.2°W
AUGUST 1956

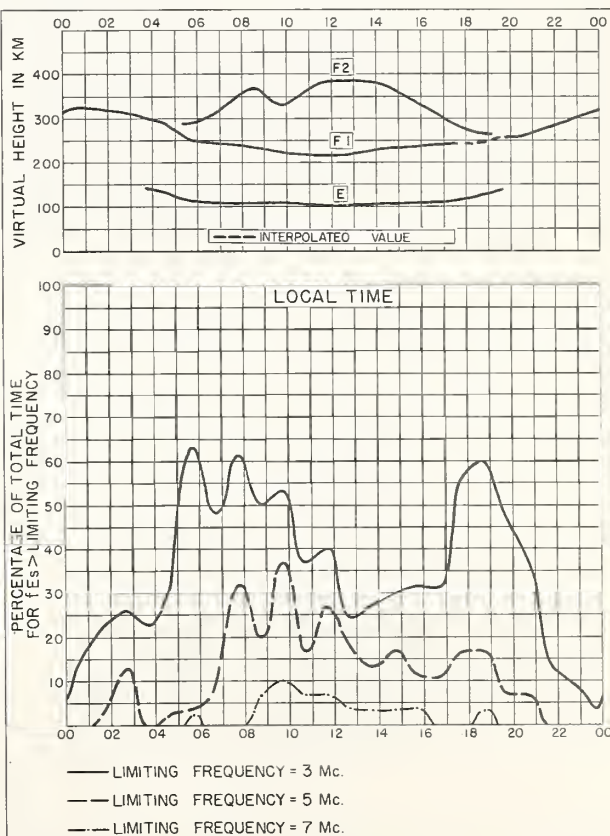


Fig. 120. INVERNESS, SCOTLAND
AUGUST 1956

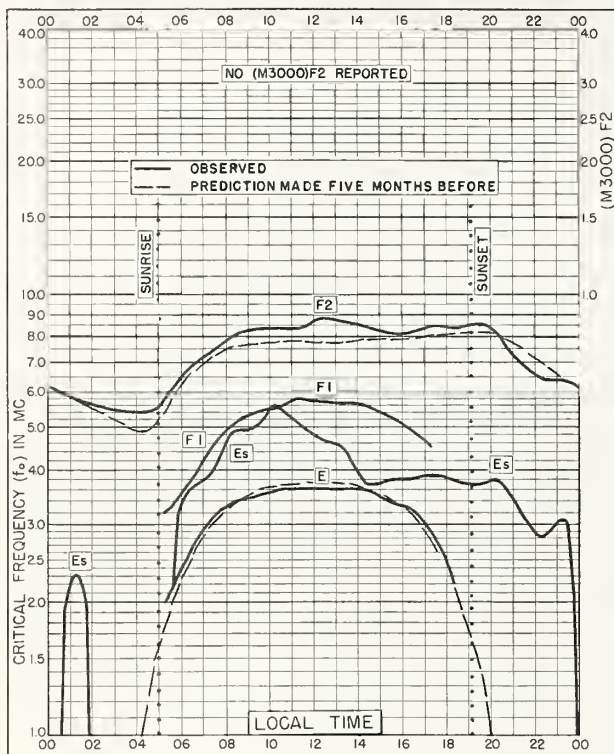


Fig. 121. BUDAPEST, HUNGARY
47.4°N, 19.2°E

AUGUST 1956

NBS 503

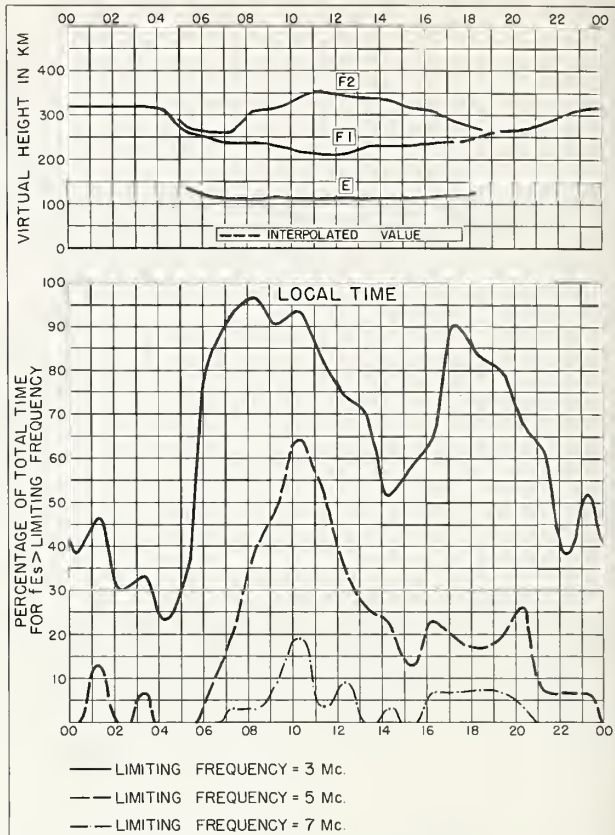


Fig. 122. BUDAPEST, HUNGARY

AUGUST 1956

NBS 450

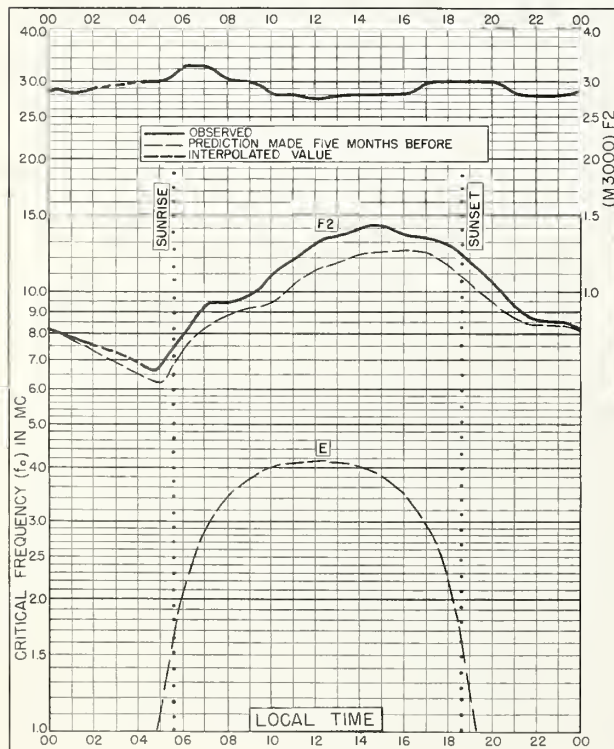


Fig. 123. DELHI, INDIA
28.6°N, 77.1°E

AUGUST 1956

NBS 503

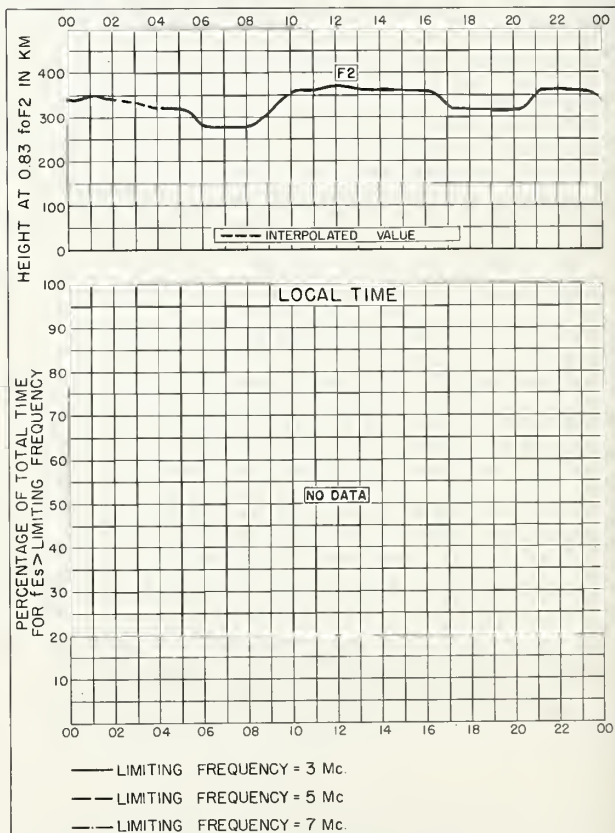


Fig. 124. DELHI, INDIA

AUGUST 1956

NBS 450

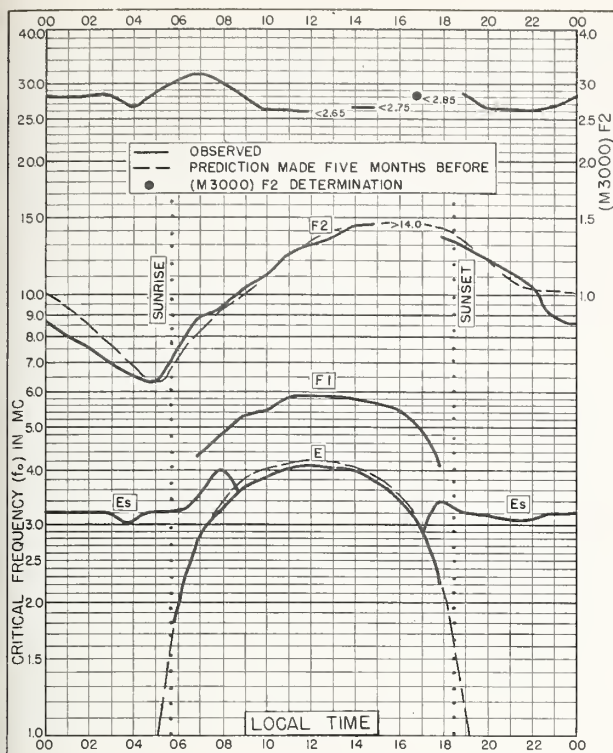


Fig. 125. AHMEDABAD, INDIA
23.0°N, 72.6°E

AUGUST 1956

NBS 503

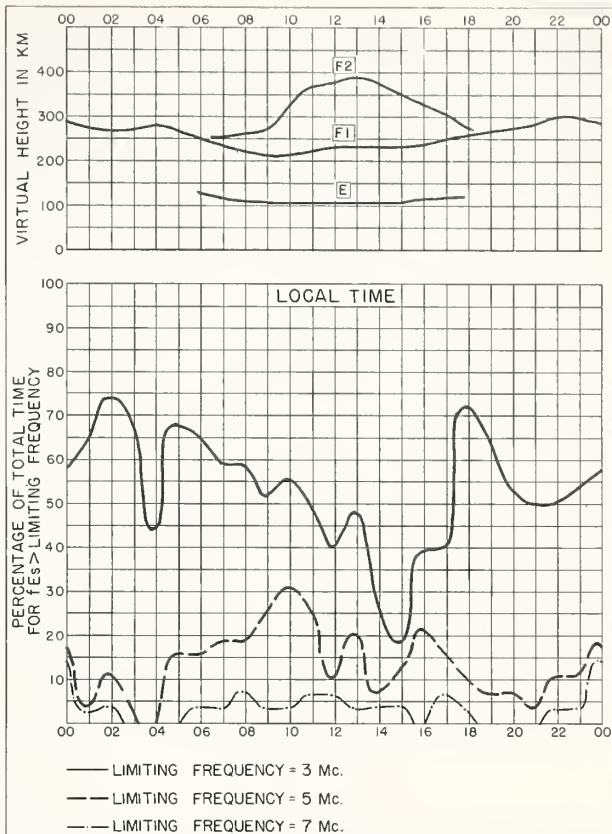


Fig. 126. AHMEDABAD, INDIA

AUGUST 1956

NBS 490

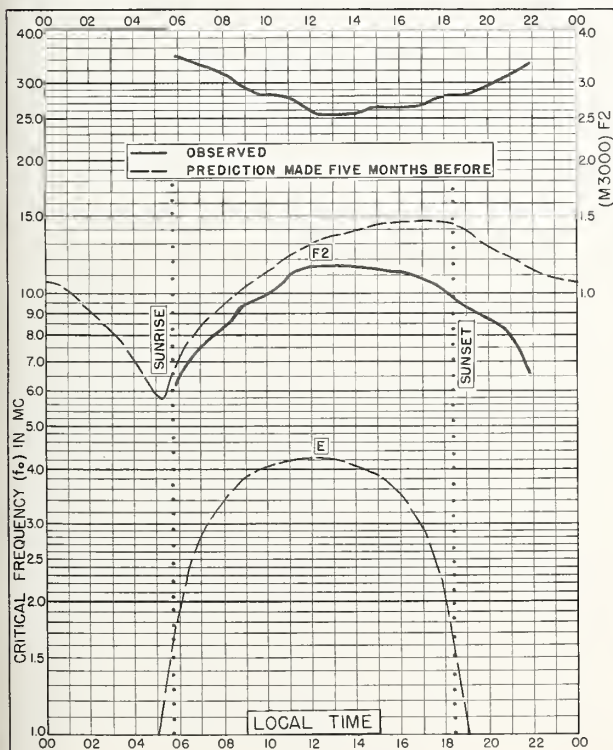


Fig. 127. BOMBAY, INDIA
19.0°N, 73.0°E

AUGUST 1956

NBS 503

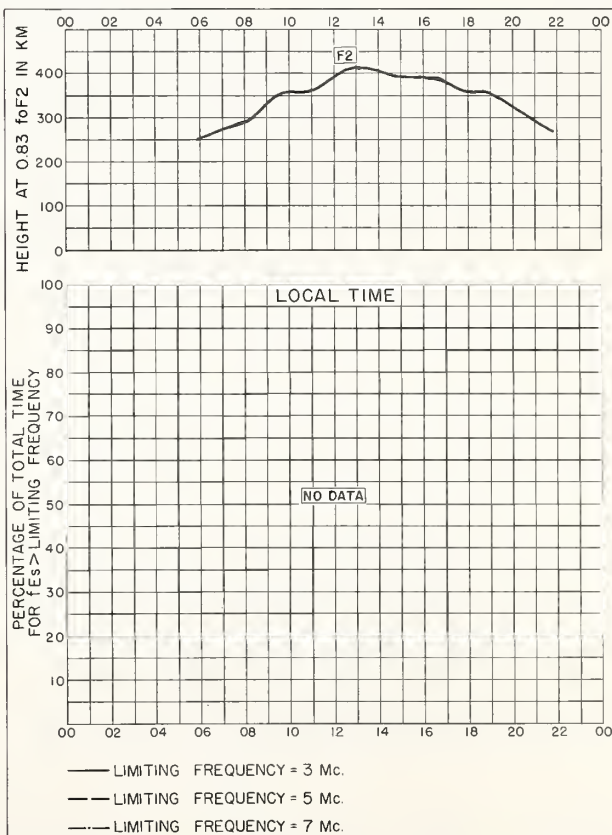


Fig. 128. BOMBAY, INDIA

AUGUST 1956

NBS 490

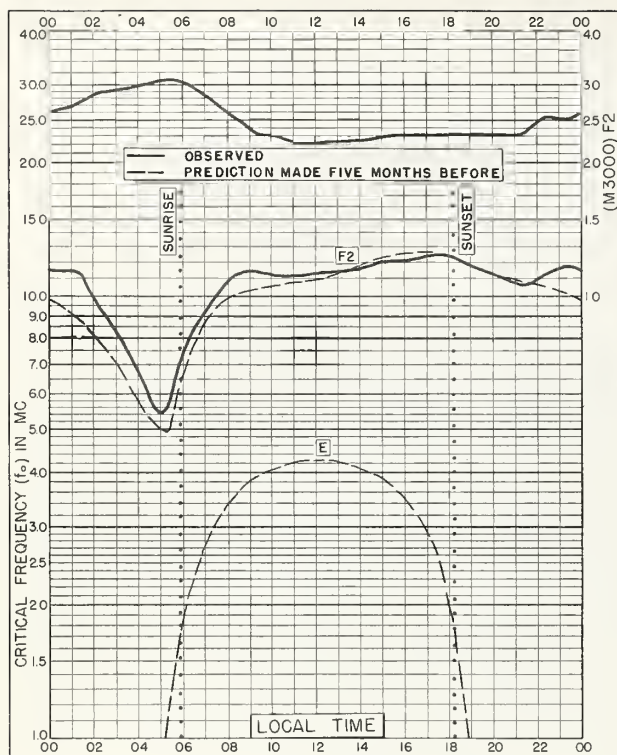


Fig. 129. MADRAS, INDIA
13.0°N, 80.2°E

AUGUST 1956

NBS 503

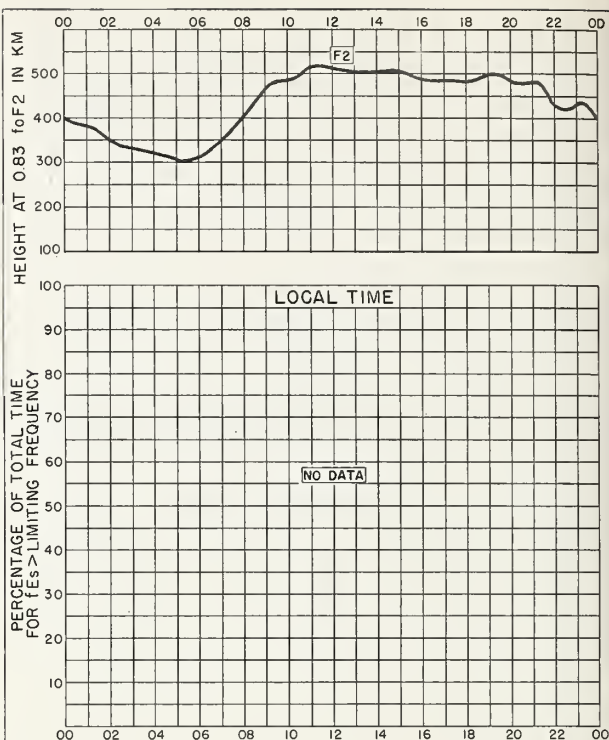


Fig. 130. MADRAS, INDIA

AUGUST 1956

NBS 490

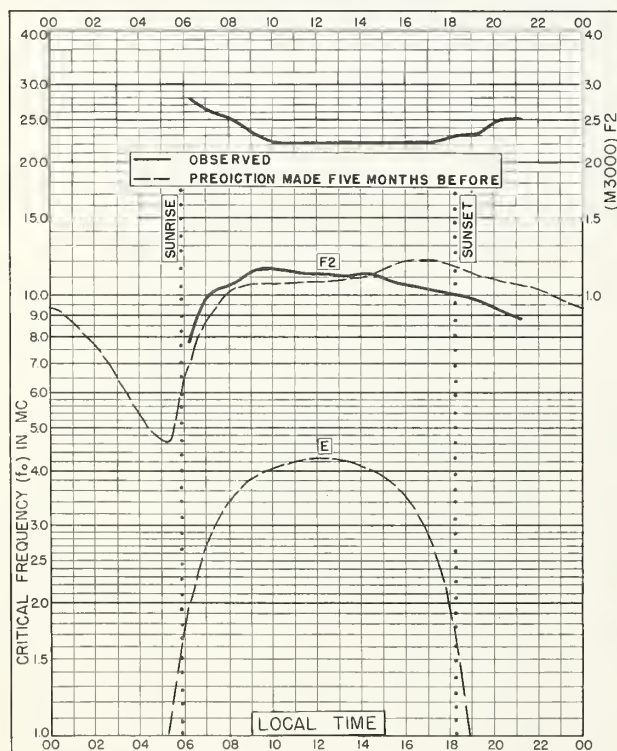


Fig. 131. TIRUCHY, INDIA
10.8°N, 78.8°E

AUGUST 1956

NBS 503

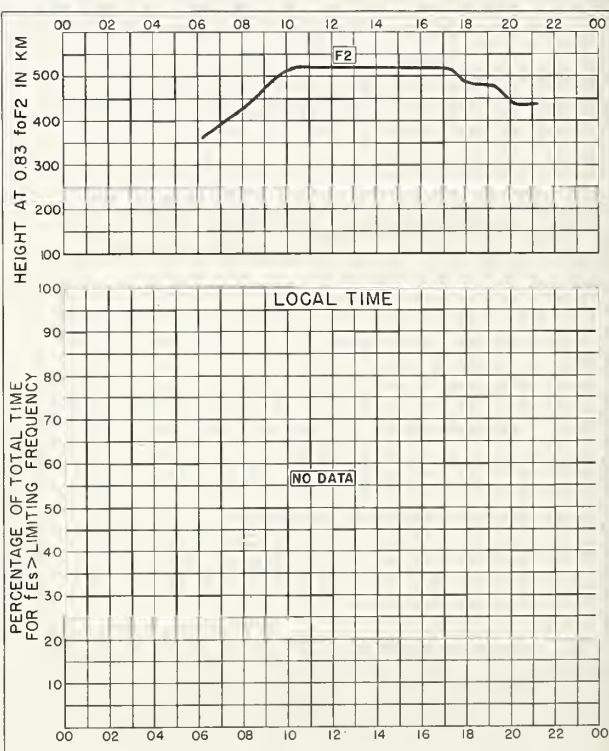


Fig. 132. TIRUCHY, INDIA

AUGUST 1956

NBS 490

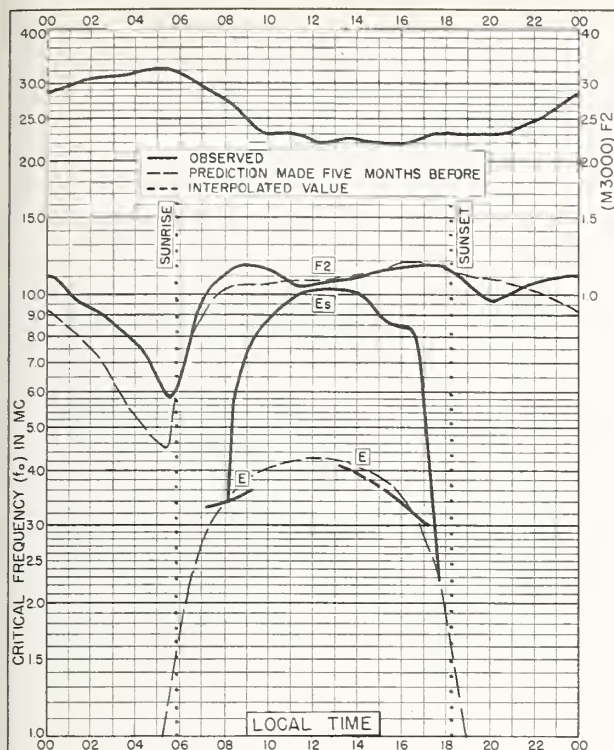
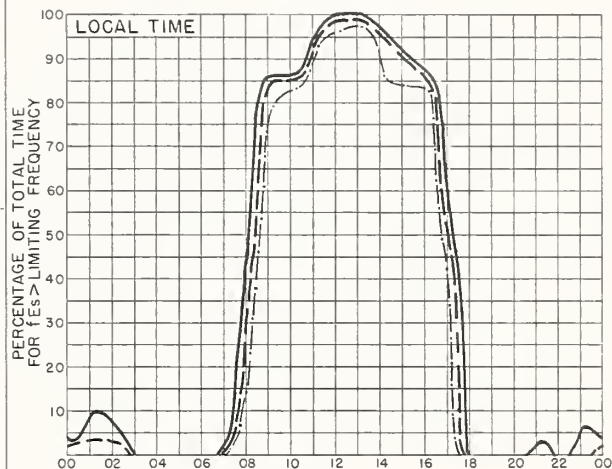
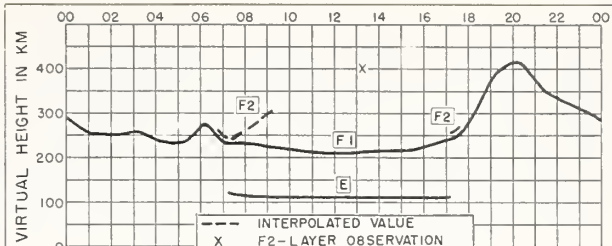


Fig. 133. KODAIKANAL, INDIA
10.2°N, 77.5°E

AUGUST 1956

NBS 503



— LIMITING FREQUENCY = 3 Mc.
— LIMITING FREQUENCY = 5 Mc.
— LIMITING FREQUENCY = 7 Mc.

Fig. 134. KODAIKANAL, INDIA

AUGUST 1956

NBS 490

A. S. INTERNATIONAL PHYSICS SERVICE 313877

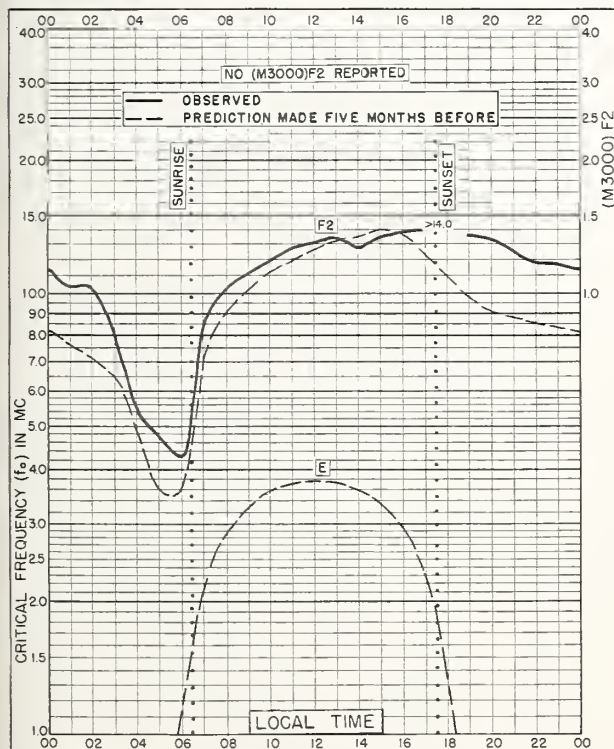


Fig. 135. SAO PAULO, BRAZIL
23.5°S, 46.5°W

AUGUST 1956

NBS 503

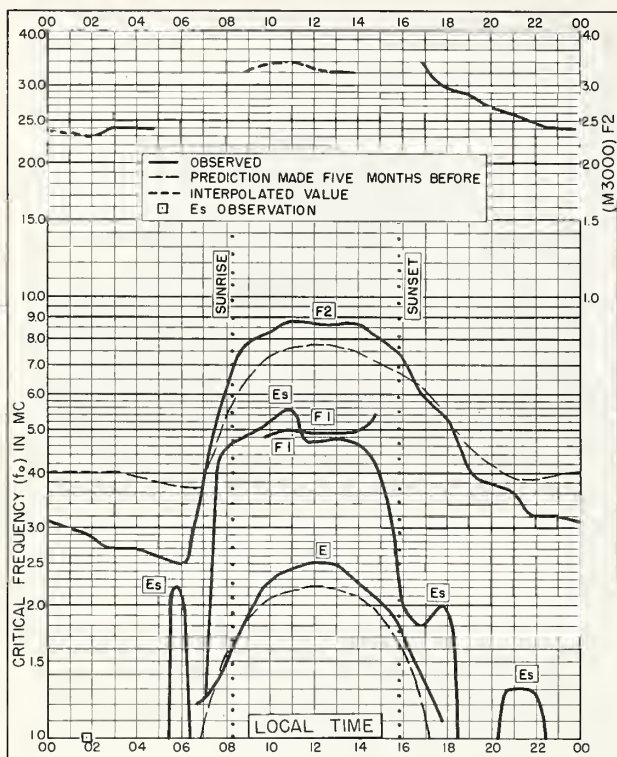


Fig. 136. PORT LOCKROY
64.8°S, 63.5°W

AUGUST 1956

NBS 503

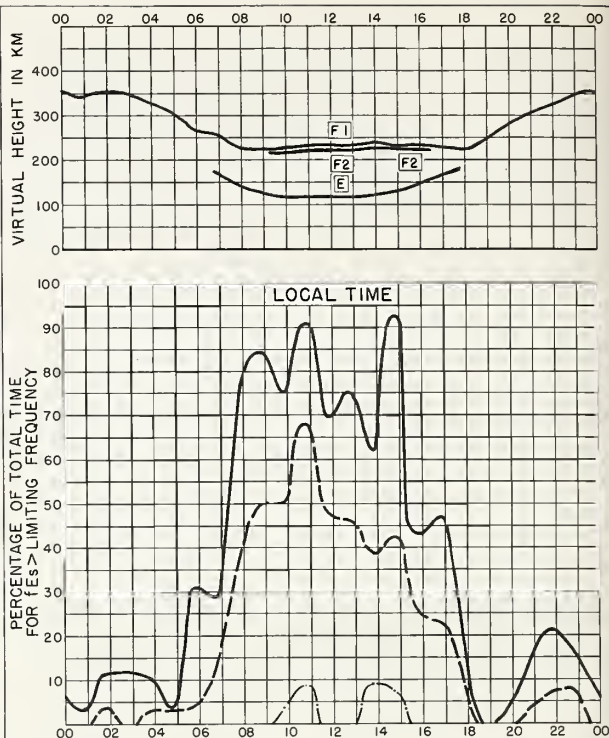


Fig. 137. PORT LOCKROY

AUGUST 1956

NBS 490

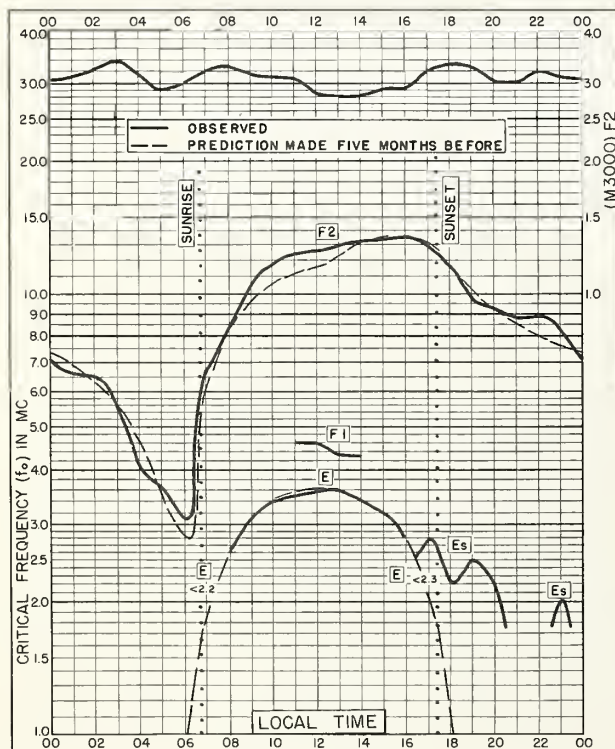


Fig. 138. SAO PAULO, BRAZIL
23.5°S, 46.5°W

JULY 1956

NBS 503

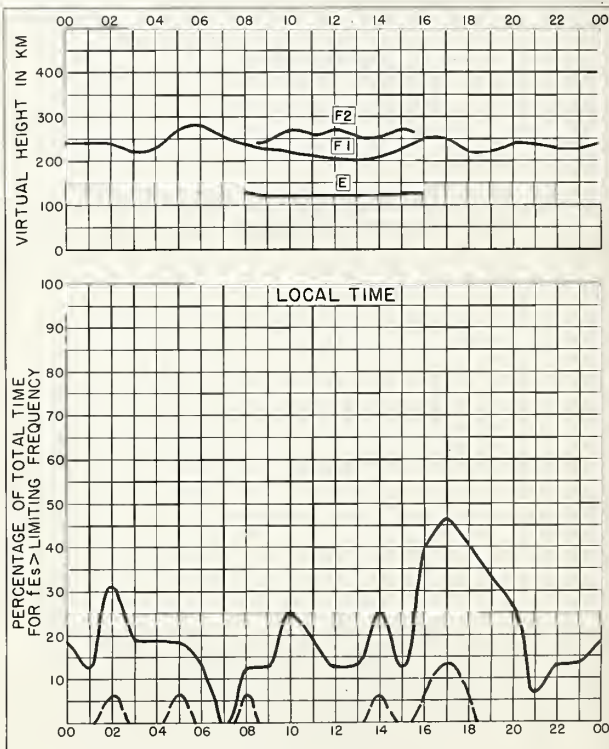


Fig. 139. SAO PAULO, BRAZIL

JULY 1956

NBS 490

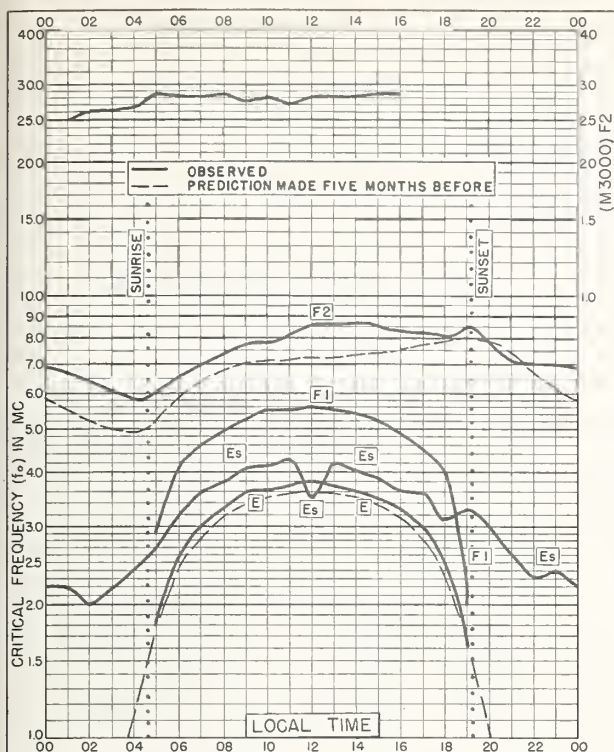


Fig. 140. POITIERS, FRANCE
46.6°N, 0.3°E

MAY 1956

NBS 503

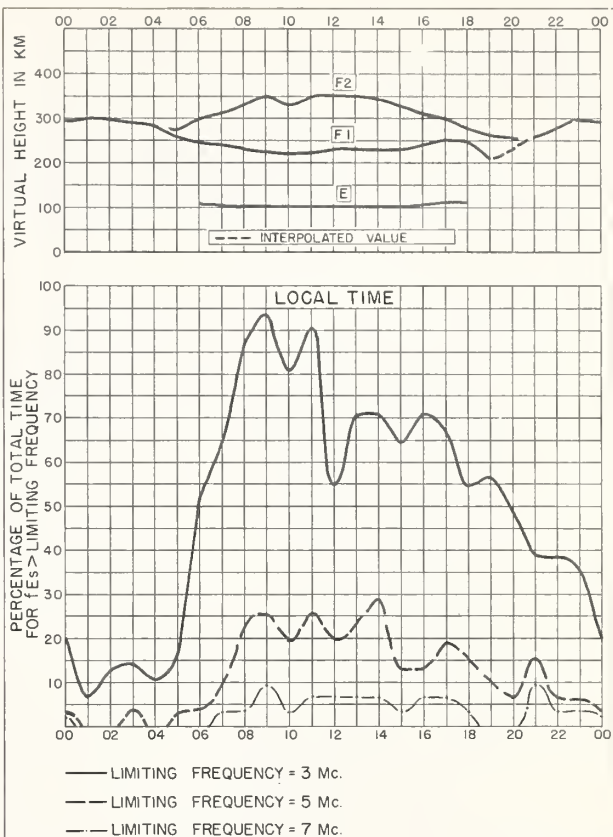


Fig. 141. POITIERS, FRANCE

MAY 1956

NBS 490

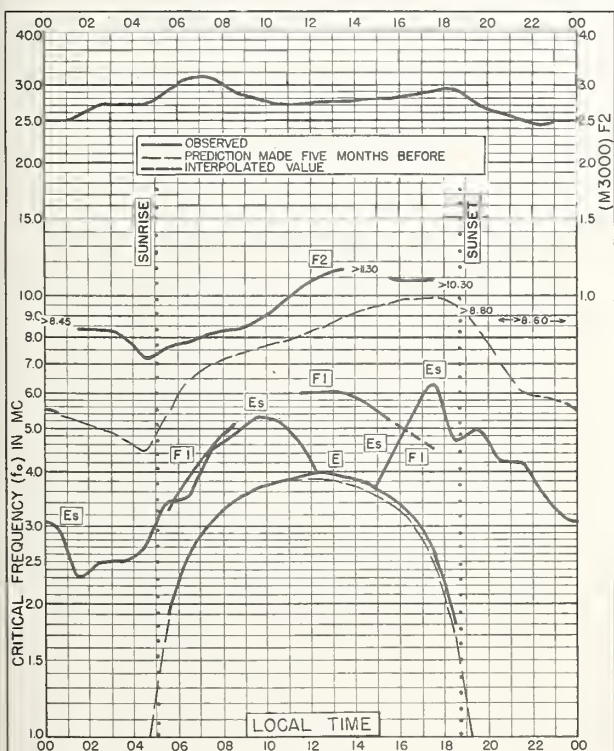


Fig. 142. CASABLANCA, MOROCCO
33.6°N, 7.6°W

MAY 1956

NBS 503

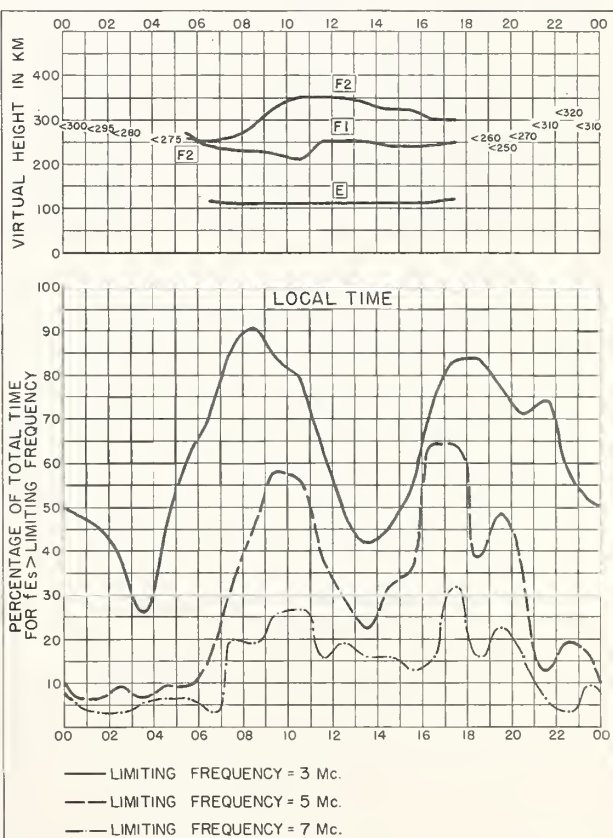


Fig. 143. CASABLANCA, MOROCCO

MAY 1956

NBS 490

Index of Tables and Graphs of Ionospheric Data
in CRPL-F159 (Part A)

	<u>Table page</u>	<u>Figure page</u>
Adak, Alaska		
August 1957	16	29
July 1957	18	34
Ahmedabad, India		
September 1956.	24	54
August 1956	26	59
Anchorage, Alaska		
July 1957	17	33
Baguio, P. I.		
June 1957	22	47
Baker Lake, Canada		
June 1957	20	41
Bombay, India		
September 1956.	25	55
August 1956	26	59
Brisbane, Australia		
June 1957	22	48
Budapest, Hungary		
June 1957	21	44
September 1956.	24	53
August 1956	26	58
Calcutta, India		
September 1956.	24	54
Canberra, Australia		
June 1957	23	49
Casablanca, Morocco		
May 1956	27	63
Christchurch, New Zealand		
May 1957	23	51
April 1957.	23	51
Churchill, Canada		
June 1957	20	42
De Bilt, Holland		
July 1957	18	34
June 1957	21	43
Delhi, India		
September 1956.	24	53
August 1956	26	58
Fairbanks, Alaska		
August 1957	16	28
July 1957	17	32
Godhavn, Greenland		
December 1956	24	52

Index (CRPL-F159 (Part A), continued)

	<u>Table page</u>	<u>Figure page</u>
Grand Bahama I.		
July 1957	19	37
June 1957	22	46
Graz, Austria		
June 1957	21	45
Hobart, Tasmania		
June 1957	23	49
May 1957.	23	50
Huancayo, Peru		
July 1957	19	39
Ibadan, Nigeria		
November 1956	24	52
Inverness, Scotland		
August 1956	25	57
Kiruna, Sweden		
August 1957	16	28
Kodaikanal, India		
September 1956.	25	56
August 1956	27	61
Lindau/Harz, Germany		
June 1957	21	43
May 1957.	23	50
Lycksele, Sweden		
August 1957	16	29
June 1957	20	40
Madras, India		
September 1956.	25	55
August 1956	26	60
Maui, Hawaii		
August 1957	16	30
July 1957	19	38
Nurmijarvi, Finland		
July 1957	17	33
Oslo, Norway		
June 1957	20	41
Ottawa, Canada		
June 1957	22	46
Point Barrow, Alaska		
July 1957	17	31
Poitiers, France		
May 1956.	27	63
Port Lockroy		
August 1956	27	62
Puerto Rico, W. I.		
July 1957	19	38

Index (CRPL-F159 (Part A), concluded)

	<u>Table page</u>	<u>Figure page</u>
Resolute Bay, Canada		
June 1957	19	39
Reykjavik, Iceland		
July 1957	17	32
St. John's, Newfoundland		
July 1957	18	35
San Francisco, California		
July 1957	18	36
Sao Paulo, Brazil		
August 1956	27	61
July 1956	27	62
Schwarzenburg, Switzerland		
August 1957	16	30
July 1957	18	36
June 1957	21	45
Singapore, British Malaya		
September 1956.	25	57
Talara, Peru		
June 1957	22	47
Tiruchy, India		
September 1956.	25	56
August 1956	26	60
Tromso, Norway		
July 1957	17	31
June 1957	20	40
Upsala, Sweden		
June 1957	20	42
Watheroo, W. Australia		
June 1957	22	48
White Sands, New Mexico		
July 1957	19	37
Winnipeg, Canada		
July 1957	18	35
June 1957	21	44

CRPL Reports

[A detailed list of CRPL publications is available from the Central Radio Propagation Laboratory upon request]

Daily:

Radio disturbance forecasts, every half hour from broadcast stations WWV and WWVH of the National Bureau of Standards.

Telephoned and telegraphed reports of ionospheric, solar, geomagnetic, and radio propagation data.

Semiweekly:

CRPL—J. North Atlantic Radio Propagation Forecast (of days most likely to be disturbed during following month).

CRPL—Jp. North Pacific Radio Propagation Forecast (of days most likely to be disturbed during following month).

Semimonthly:

CRPL—Ja. Semimonthly Frequency Revision Factors For CRPL Basic Radio Propagation Prediction Reports.

Monthly:

CRPL—D. Basic Radio Propagation Predictions—Three months in advance. (Dept. of the Army, TB 11-499-, monthly supplements to TM 11-499; Dept. of the Air Force, TO 31-3-28 series). On sale by Superintendent of Documents.* Members of the Armed Forces should address cognizant military office.

CRPL—F. (Part A). Ionospheric Data.

(Part B). Solar-Geophysical Data.

Limited distribution. These publications are in general disseminated only to those individuals or scientific organizations which collaborate in the exchange of ionospheric, solar, geomagnetic or other radio propagation data or in exchange for copies of publications on radio, physics, and geophysics for the CRPL library.

The publications listed above may be obtained without charge from the Central Radio Propagation Laboratory, National Bureau of Standards, Boulder Laboratories, Boulder, Colorado, unless otherwise indicated. Please note that the F series is not generally available.

Circulars of the National Bureau of Standards pertaining to Radio Sky Wave Transmission:

NBS Circular 462. Ionospheric Radio Propagation. \$1.25.

NBS Circular 465. Instructions for the Use of Basic Radio Propagation Predictions. 30 cents.

NBS Circular 557. Worldwide Radio Noise Levels Expected in the Frequency Band 10 Kilocycles to 100 Megacycles. 30 cents.

NBS Circular 582. Worldwide Occurrence of Sporadic E. \$3.25.

These Circulars are on sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Members of the Armed Forces should address the respective military office having cognizance of radio wave propagation.

* For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D. C. Price 10 cents (single copy). Subscription Price: \$1.00 a year; 25 cents additional for foreign mailing.

